



Power to Transform Lives

Bioeconomy to Bioeconomy-USD 100 Bn By 2025
Led by Department of Biotechnology, Govt. of India

21-23 NOVEMBER 2019 • AEROCITY, NEW DELHI

MAKE IN INDIA



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(A Govt. of India Enterprise)

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**LAB
TO
MARKET**
Biotech Products/
Technologies of Startups
Supported by BIRAC
2019

Foreword



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DR. RENU SWARUP

सचिव
भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय
जैव प्रौद्योगिकी विभाग
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MESSAGE

The rapid growth of Biotech Innovation ecosystem is the key contributor to the growth of global bioeconomy. Inventions and innovations from Research Institutes, Entrepreneurs, Start-ups and Industry are steering the Indian biotechnology ecosystem growth and is set to become the driving force to accomplish USD 5 Trillion economy target.

BIRAC supported network today comprises of over 1000 start-ups, 500+ SMEs, 41 Bioincubators, 4 BIRAC Regional Centres, a large pool of mentors & experts, 5 Bio-connect offices and National & International Partners which has helped it in building a strong foundation for budding Biotech enterprises. BIRAC is further expanding its reach to young innovators and researchers to evolve Biotech Entrepreneurship as a career of choice, encouraging young minds and talent - trending away from Job seekers to Job creators.

BIRAC's close alignment with different national mission programs such as Swachh Bharat, Ayushman Bharat, Make in India, Start-up India etc. is also helping development and validation of indigenous technologies addressing unmet need of the country. It is also heartening to see that increasing number of technologies from academia is being translated to commercial products - a visible shift towards translational research.

The 2nd edition of "Lab to Market" booklet featuring 100+ innovative products and technologies is a testimony of the unconditional support and handholding provided to different stakeholders eventually converting the efforts of innovators and entrepreneurs into tangible products. The upcoming mega event Global Bio-India 2019 would provide an unparalleled opportunity to showcase the strengths of Indian Biotech Startup ecosystem to the global community.

Many Startups covered in this catalogue and several more which are under various stages of development have potential to scale and establish themselves at national and international markets. My heartiest congratulations to the wonderful effort made by these Start-ups. Onus is on the stakeholders including Industry, Investors, Agencies, Public procurement bodies to help them nurture and grow.

Renu Swarup

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Dr. Renu Swarup
Secretary
Department of Biotechnology
& Chairperson, BIRAC

Disclaimer: Data provided in this publication is as claimed by respective Startups.

Preface

During the last few years, Indian Biotech Sector has shown exponential growth. BIRAC's extraordinary contribution to the growth of biotech ecosystem is exemplary & transformational. Several customized and uniquely positioned initiatives of BIRAC have helped recognising the Biotech Entrepreneurship as a career option. Constantly growing numbers of projects supported, new Start-ups created, increase in the patent filing trends, acclaimed national & international awards by Start-ups & over 130 commercially deployed products and technologies reflects tangible growth of the Biotech Startup Ecosystem in the country.

BIRAC has created several instruments to support the product across the value chain i.e. proof of concept to validation, scale-up of products/technologies until commercialization. A provision for lateral entry from BIG to SBIRI/BIPP scheme has also been rolled out to create a unique opportunity & address the feedback from the innovator community. Schemes providing early stage to late stage equity funding such as SEED Fund, LEAP Fund, Product Commercialization Fund and AcE Fund etc., have been operationalized to meet the rising demands of Startups in validation/commercialization stage.

This 2nd edition of “Lab to Market” Catalogue 2019 features detailed information about the innovative products and technologies developed by over 100 BIRAC supported Start-ups. This book is also a reflection of the fact that the Indian Biotech Industry backed by strong commitment of the Department of Biotechnology & BIRAC is ready to make a global presence.

I sincerely complement the active efforts of all the stakeholders and thank them for their distinct support and commitment towards fostering and nurturing the biotech innovation ecosystem.

I am sure that the mega event Global Bio- India 2019 would bring newer opportunities for everyone and open up avenues to build partnerships and collaborate to work together for the US \$ 100 Billion Bioeconomy aspiration.



Dr. Mohd. Aslam
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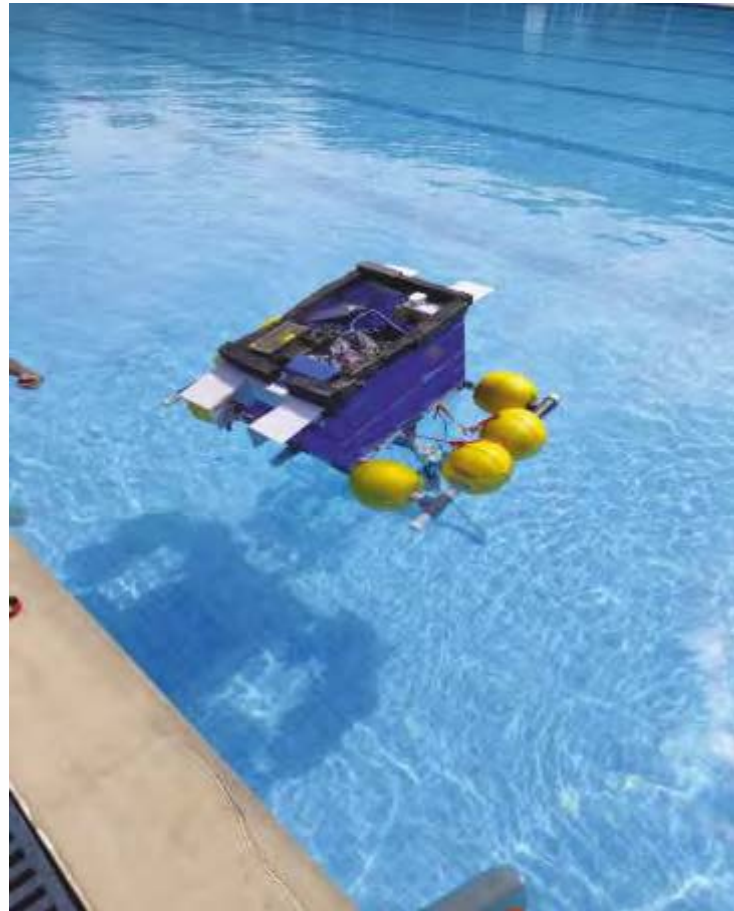
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Aeration and Feed Management System for Aquaculture Farming



Unique Selling Point

- Bariflo-labs Pvt. Ltd. offers technological solutions for aquaculture farmers at a variety of scales.
- To solve the problems related to poor feed management, water quality, and disease interventions mainly white spot syndrome (WSS), Bariflo has innovated following solutions: 1) a process and integrated AI, 2) Lotus A: An IoT based manoeuvrable hypolimnetic aeration device and 3) Lotus F: A manoeuvrable feed cum drug delivery device. Both the devices are renewable energy based and will work in coordination with each other on the basis of AI to carry out good management of water quality and feed.
- Innovativeness:** a) Lotus A is at least 35% more efficient in oxygen transfer and 100% more faster than existing paddle wheel aerator and blowers, b) Lotus F offers at least 40% more reduced feed wastage which is a pain point for farmers, c) Operational expenses in terms of electricity reduction are 80%.



Geographical Region Targeted

India



Cost

The business model is lease based; hence the service will be offered in a cost range of INR 25000-35000 depending upon the area of the aquaculture pond where service is being offered.



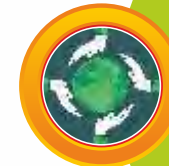
Sold

Pre-orders : 32



Product Positioning

Co-operative shrimp farmers Haripur, Berhampur, Odisha



National/Societal Relevance

Poor feed management and poor water quality, and disease interventions mainly white spot syndrome (WSS) drastically reduce the profitability of aquaculture in India. It has been verified that there is a direct relationship between WSSV disease and dissolved oxygen. Especially, it has been observed that maintaining high level of dissolved oxygen (DO) prevents from the spread of WSS virus which is considered as a most serious threat to shrimp industry. The present innovation offers a solution for the above mentioned problems and the company strives to make farming and environmental management economically sustainable.



IP Status

Patents: 320950-001, 320950-002, 320950-003, 320950-004, 201831031000



Import Substitution

Yet to explore



Export Potential

Yet to explore



Major Achievements (including awards)

- Nominated for innovator under 35 by MIT.
- NIDHI-PRAYAS by VIT-TBI sponsored by DST.
- Received BIRAC SEED fund by VIT-TBI, sponsored by BIRAC.

BioAvert I: Preventing Fungal and Nematode Diseases of Crops



Unique Selling Point

- Swasti has developed organic products (under patenting) for prevention of crop diseases and providing micro-nutrients. It has also developed analysis based advice system for farmers. The products, analysis, and advice when coupled together add high value to farmers.
- Biogas slurry based products-developed recently provide additional income of upto INR 6000 pm for marginal farmers through sale of bio-slurry. Some of them are based on the disease resistance technology.
- Innovativeness:** About 100X more effective technical molecule and single molecule can perform multiple functions



Geographical Region Targeted

India, Rwanda and Ethiopia



Cost

- INR 110 -1080: (Cost range of one product application on one acre)
(The products are available in different pack sizes)
- Farmers growing tomato have used the complete package of products and saved INR 14,000 per acre on mitigation of disease. These farmers also got estimated increase in the yield from 4 to 7 Mt per acre.



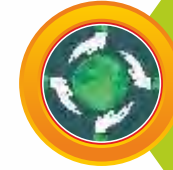
Sold

30,000 Units



Product Positioning

B2C Farmers, B2B Farmer Co-Operatives and FPOs



National/Societal Relevance

Farmers over Asia and Africa lose 30% of their crops on an average because of diseases (FOA). If the season is bad risk of losing crop increases to 90%. Prevention using non-toxic biotech based products is the solution.



IP Status

PCT Filed: PCT/IB2017/055157 (National phase filing in India and ARIPO)



Import Substitution

NA



Export Potential

High in Middle East and East Africa. The Company needs to spend time (1-2 yrs) and money for product registration in the destination country.



Major Achievements (including awards)

- Received BIRAC BIG and SBIRI grant.
- Millennium Alliance for India and East Africa.
- IIGP.

Biomic NPZ & Biomic NPKZ: Solid and Liquid Organic Formulations for Farming



Unique Selling Point

- Arka Microbial Consortium contains three beneficial bacterial strains which help in nitrogen fixing, phosphate, potassium and zinc solubilisation and uptake. In addition the exudates produced by the strains also have PGPR activity.
- **Innovativeness:** Strain of bacteria are authenticated and sourced from ICAR-IIHR, Bengaluru. The strains are very effective in their proposed functions with potassium solubilisation which is very rare in market.



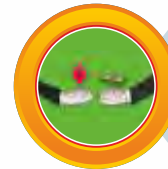
Geographical Region Targeted

India



Cost

- Solid formulation : INR 187/ Kg,
- Liquid formulation: INR 285/L



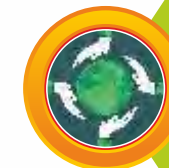
Sold

15 tonnes



Product Positioning

- All crops including vegetables, fruits, spices, flowers, plantation crops, coffee, Cardamom, pepper plants can be benefitted.
- As the product is certified organic, it will be useful for organic farming. Have no residues or heavy metals.



National/Societal Relevance

Many states are shifting to organic cultivation. Biomic NPKZ is certified as organic in accordance with APEDA norms. This will help the farming community to judiciously use chemical fertilisers and encourage organic cultivation.



IP Status

NA



Import Substitution

NA



Export Potential

The product is licensed for production only in Indian territories as per agreement with parent institution ICAR-IIHR.



Major Achievements (including awards)

First Arka Microbial Consortium (Biomic NPZ and Biomic NPKZ) to be accredited with APEDA Organic certification.

Croplytics®: An Autonomous Irrigation System



Unique Selling Point

- An autonomous irrigation system based on IoT sensors, satellite imaging, weather, evapotranspiration and crop water Cycle which helps in automating the irrigation system.
- The Artificial Intelligence Model comes up with a plan on when and how much to irrigate and further takes action based on the plan.
- **Innovativeness:** The system incorporates multiple sources of data to devise an irrigation plan.



Geographical Region Targeted

India – States: Punjab, Haryana, Uttar Pradesh and Madhya Pradesh.



Cost

- Croplytics® Sensor - 8,500 INR
- Croplytics® Gateway - 12,000 INR
- Croplytics® Valve - 4,500 INR
- Croplytics® Lite - 8,500 INR (Only Remote Motor Controller)

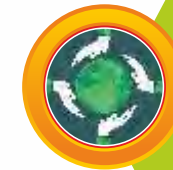


Sold
20



Product Positioning

B2B, B2C; Medium & Large Farmers, FPOs, contractual farming organizations.



National/Societal Relevance

- Water is a scarce resource and with more than 90% of fresh water is used for irrigation in India; there is a need for smart micro-irrigation system in India.
- Croplytics not only provides water usage optimization, it also helps in lowering Fertilizer Leaching due to over irrigation, lowering underground water toxification. This eventually impacts the health of crop, farmers and consumers.



IP Status

NA



Import Substitution

Croplytics® is completely designed and manufactured in India and thus will be available at a comfortable price range which further helps the consumer to adopt the product for Irrigation needs.



Export Potential

Autonomous Irrigation is the need of hour as there is a global shortage of labour in Agriculture. The product is placed much better in terms of costing and certainly has a very high export potential.



Major Achievements (including awards)

- Selected in Marico Innovation Foundation.
- Selected in ARISE by IARI.
- Selected in Innovation Playground, IARO.

Modular Vertical Farming System for Distributed Urban Farming



Unique Selling Point

- The company is making modular vertical farming systems to enable largescale distributed urban farming. The innovation utilizes hydroponics technology powered by IoT and AI to bring down operational cost and effort of maintaining these farms while providing consistency and reliability.
- Innovativeness:**
 - Our farms are designed for low operational effort and cost, which is the biggest challenge with distributed farming.
 - Also, we can grow multiple varieties with the same setup and simultaneously. This allows us to provide a range from a small space.
 - We can get 30% more yield as compared to current hydroponic setups.

Geographical Region Targeted

International

Cost

Available on Request

Sold

Two units, Pre-orders: 3

Product Positioning

- B2B: Luxury hotels, corporate offices
- We are testing our B2C approach and product features of the scaled-down version of the farm.

National/Societal Relevance

Food and nutritional security are of paramount importance to any nation. Changing climate, rapid land degradation and lack of potable water pose a huge challenge in food production. Also, in most developing countries, 40% of food is wasted in the supply chain. On top of that, most fresh vegetables lose nutrition within 6 hours of harvesting. We address these challenges in a system change approach, where we use unused spaces within the city to grow food and bring it closer to urban population while using 90% less water, resilient to climate change and decrease pressure on arable land.

IP Status

NA

Import Substitution

NA

Export Potential

Ours is a city-based model. We intend to start operations in Southeast Asia and the EU in 3 years.

Major Achievements (including awards)

- 60 L Investment raised in CCPS.
- Innovative technology award at CZC 2018, IIT Madras.

Nanofiber Based Ultra-light Weight Fertilizer Carrying Membrane



Unique Selling Point

- FIB-SOL aims to develop nanofiber matrices for industrial applications, beginning with agriculture. The present innovation is the world's first membrane based water soluble Agri-input (biofertilizer).
- 5 gram of tissue paper like membrane is sufficient to fertilize an acre and provides microbes needed to fix NPK in an acre of land.
- Innovativeness:** Product is ultra-light weight compared to conventional products and retains 100% efficacy, even after storage for 1 year.



Geographical Region Targeted

India, Malaysia and Australia



Cost

INR 575/unit
(discount of 13% for farmers)



Units Sold

1000



Product Positioning

- B2C: Kallucoppa coffee- Coffee, Kelagur Coffee- Tea, Sammunathi- Maize, Indira Agrotech- Paddy, Farm Harvest- Maize
- B2B: Nagarjuna Agro Chemicals Limited



National/Societal Relevance

Organic farming is a global necessity to improve the quality of soil and produce healthy food. The aim to mitigate the risks involved in organic farming by providing stable and appropriate biofertilizers, which acts as an integral part of organic farming. The financial burden on farmers can be reduced to a great extent through organic farming. As well as the technology reduces the logistics cost and manpower cost to a great extent.



IP Status

- Patent Applied, and PCT filed: 3490/CHE/2015
- Patent Granted: E-106/349/2016/CHE
- US Patent applied



Import Substitution

This technology can substitute the imported microbe consortia, since this technology offers a high pay load, 1 gram of which can fix 20 kg of nitrogen. Apart from it, the stability of the microbes in the membrane is very high and hence produces significant increase in yield when applied in the field and hence can replace the competitive technology.



Export Potential

- Approximately 1 Lakh units to be supplied to the Malaysian government in next year.
- Selected for the GRAFT Challenge program in Australia, which the company believes will help to expand in the territory.



Major Achievements (including awards)

- Won the Swissnex Lift Labs Liftathon series (2016).
- Won 'Cavinkare-MMA Chinnikrishnan' award by Dr. Kavitha.
- Qualified for the Open Innovation challenge of IIGP 2.0 and awarded seed funding support of Rs. 25 lakh from 1500 applicants.
- Cofounders' core patent on using nanofibers for entrapment of microbes was selected for the Sir J C Bose Patent Award from IIT Madras 2017.
- Won NBEC, 2017.
- Uzhavethalai awardee (2017).
- Won the start up SG Award, in the Future Food Asia competition (2018).

SNIPR™ (Smart Nanomolecules Induced Physiological Response): Technology for Ag Biologicals

Unique Selling Point

- For farmers facing crop loss due to changing climatic conditions, the SNIPR™ technology offers certified organic, residue free next-gen biological products based on metabolites that simulate the defense/adaptation system evolved and perfected by nature.
- SNIPR™ based products are bio-activators (including metabolites, priming agents, etc that up-regulate transcription factors (TF), pathogenesis related (PR) and defense genes and heat shock protein (HSP) genes) derived from a naturally occurring, diverse community of plants, algae, fungi or microorganisms and the biomolecules by products they produce.
- Incorporating these in formulation builds up plant's tolerance to biotic and abiotic stress, activating the defence system.
- Innovativeness:** Products come in liquid, granulated, foliar forms and they can easily be adopted by marginal farmers and institutional clients alike on "as is where is" basis- irrespective of farmland size. These are ultra low volume formulations suitable for drone based application. This makes us uniquely positioned- the only biologicals company to have full spectrum of product forms from drone based to granulated.



Geographical Region Targeted

- National- Maharashtra, Andhra Pradesh, Tamil Nadu, Telangana, Karnataka, Gujarat, Uttar Pradesh, Bihar, Jharkhand, West Bengal, Punjab, Haryana
- International: Asia Pacific and African region (to be targeted)



Cost

- BIOSTIMULANTS** (For application on one acre of Field)
 - Prime Fortisea (Growth Booster, Stress Reliver) - INR 450/500 ml
 - Prime Chiron (Yield Booster)- INR 630/500 ml
 - Prime Verdant (4 in One)- INR 1155/500 ml
 - Prime Fast10 (Yield Booster)- INR 600/ 250 ml Foliar
 - Prime MAX10 (4 in one) – INR 1000/250 ml Foliar
- BROADCAST**
 - Prime CG PRO (Triple Action) - INR 235/ 1 KG Granule
- PLANT IMMUNITY**
 - Prime Conquer (Immunity Booster) – INR 399/100ml Foliar
 - Prime Sentinel (Immunity Booster) – INR 368/100 ml Foliar



Sold

- Liquid formulations: 12000 L
- Granule formulation: 200 MT



Product Positioning

- B2B- Products are marketed via respected strategic partners such Delta Agrigenetics Pvt. Ltd., FinozenNutrigration LLP etc.
- B2C- Products are marketed via regional agrochemical retailers or FPO and Women farmer group and SHGs through partnerships with NGOs.



National/Societal Relevance

- Globally, climate change affects more than 70% of all agriculture. Annually Indian agriculture suffers a loss of US\$ 42.66 million due to impact of climate change mainly affecting marginal & small holder farmers, that make up the majority of the farming population.
- SNIPR™ delivers increased yields with higher quality that fetch better market price, increasing farmer incomes while mitigating climate change. The products can be integrated into current irrigation practices without any additional costs in chemical. They can easily be adopted by marginal farmers and institutional clients alike on "as is where is" basis- irrespective of farmland size.



IP Status

- 3 Patents filled, Trademarks-11
- Provisional Patent filed: TEMP/E-1/15883/2019-MUM



Import Substitution

SNIPR™ based products offer substitutes to other products from companies like; BASF (Germany), Isagro (Italy), Valagro (Italy), Bayer (Germany), Italtollina (Italy), Koppert Biological Systems (Netherlands), Acadian Seaplants (Canada), UPL (India) and Biolchim (Italy).



Export Potential

The technology has a huge potential since there is a strong market demand for high-value crops across the globe and the increasing need to support crop growth due to abiotic stress, arising from changing climatic conditions.



Major Achievements (including awards)

- DIPP recognition, DPIIT recognition along with Tax exemption from IMB.
- Awarded Ignite fellowship -BIRAC & Cambridge Judge Business school, UK2018.
- Awarded TIE- BIRAC WINER Award & Won "Growth challenge" UnLtd India (2018).
- Awarded NBEC 2018 Investment opportunity of 100,000 USD from Social Alpha & Agripreneur pitch competition- Sakal group.
- Launched 8 products in 12 states in India with 2018-19 revenue of 1.29 Cr.



Synthesis of Hybrid Orchids of Indian Origin



Unique Selling Point

- Kwaklei and Khonggunmelei Orchids Pvt. Ltd. has been synthesizing hybrid orchids using potential species found in India, particularly in the northeastern states. Elitegenotypes of the already synthesized hybrids have been selected and propagated clonally for commercialization. So far, more than 70 primary as well as secondary orchid hybrids are developed.
- Innovativeness:** The Company's hybridization program is based on species of purely Indian origin and their resulting hybrids are thus unique. This uniqueness shall differentiate the new hybrid orchids from those produced by foreign breeders.



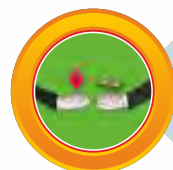
Geographical Region Targeted

Indian sub-continent, Indo-Myanmar region and Middle East.



Cost

- Cost of Tissue cultured flask having 8-10 plants: INR 500/flask.
- Young plants (4-5 cm): INR 200/plant.
- Near flowering plants: INR 500/plant.



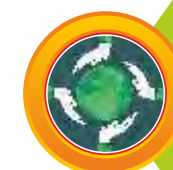
Sold

1500+ plants till now



Product Positioning

- B2B/B2C
- Major target customers are the Indian orchid cultivators, traders and the tissue culture laboratories that do commercial micro propagation.



National/Societal Relevance

There is immense potential for orchid industry in India and this would require dedicated orchid breeders to feed the requirements of new varieties and planting material from time to time.



IP Status

Registered 10 hybrid orchids



Import Substitution

Most of the commercial orchids in cultivation in India are imported ones. Hence, there is urgent need of genuine hybrid orchids of Indian origin to substitute the import load. Encouragement of breeding Indian orchid is the only long term solution to reduction in foreign dependency for planting materials of commercial orchids.



Export Potential

Indian orchids, even as species, are sought after by many orchid enthusiasts worldwide. Hybrids synthesised using these stocks are expected to perform exceedingly well in international market. Moreover, these hybrids shall perform well under the prevailing climatic condition of India.



Major Achievements (including awards)

Dr. Th. Ibeyaima Innovation Award, 2018 (State Award, conferred by Manipur Science and Technology Council).

Testimonial

“BIRAC and the entire ecosystem around it have played a pivotal role in Valetude Primus Healthcare's journey. Our TB diagnostic tool called 'SeeTB' was funded by BIRAC through its Grand Challenges Exploration-India program and SRISTI-BIRAC PMU. The support helped our innovation from proof of concept to successful clinical validation across India.”

**Vikas Pandey, Co-founder & MD
Valetude Primus Healthcare Pvt. Ltd.**

Testimonial

“When we had an idea of venturing into Bacteriophages which was not explored in detail, BIRAC believed in us and encouraged us. Today we are out with products in the market which are commercialized successfully. BIRAC's efforts in promoting women entrepreneurs especially is praiseworthy. BIRAC has opened many avenues by providing support to the industries for various challenging projects.”

**Dr. C. R. Subhashini, Director
Aristogene Biosciences Pvt. Ltd.**

Testimonial

“ In every step of our entrepreneurial journey so far, we have been nurtured by BIRAC, C-CAMP, Bangalore Bioinnovation Centre, Startup India, Startup Karnataka, Villgro, Social Alpha, PATH and other Ecosystem Enablers. Their financial support, mentoring, network and guidance have been pivotal in getting two of our innovations, NEURO TOUCH and KADAM from a concept stage to a market ready stage. We look forward to continued support from the Ecosystem Enablers in the commercialization stage of our products. ”



**Vinayak Nandalike, Founder
Yostra Labs**

Testimonial

“ I have been associated with BIRAC for more than 4 years. I am happy to state that BIRAC has been very successful in achieving the stated goals. It has been instrumental in bringing more than 125 products and technologies from lab/idea to proof-of-concept to refinement and finally to market. In future, I expect that there will be many more breakthroughs and successful bio-medical devices which will be not only useful in India but also make a mark internationally. ”



**Ashitava Ghosal, Professor
Mechanical Engineering Department and the Centre
for Product Design and Manufacturing, IISc-Bangalore**

Testimonial

“ I am really indebted to BIRAC and its generous support that I have received till date. The credibility, the visibility and the opportunities that I and other entrepreneurs get after the support from BIRAC makes our journey quite easy in an extremely difficult world. I, on behalf of all the other Bio-tech/Med-tech entrepreneurs want to take this opportunity to thank you all at BIRAC and the visionaries who created BIRAC. ”



**Dr. Pankaj Parashar, Founder
Cutting Edge Medical Devices Pvt. Ltd.**

Testimonial

“ BIRAC is one of the most successful government ventures that directly made an impact in the start-up ecosystem in India. If BIRAC mode of operation is emulated by other government agencies, there is no doubt India will lead the way in becoming the innovation capital of the world soon. Team Affigenix would like to compliment, appreciate and thank BIRAC and C-CAMP team, committee members, due diligence officers, mentors and advisors for building and maintaining the start-up ecosystem. Our best wishes for continued success of BIRAC in the future. ”



**Dr. Arumugam Muruganandam, MD & Chief Scientific Officer
Affigenix Biosolutions Pvt. Ltd.**

3nethra neo: Neonatal Screening for Retinopathy of Prematurity (ROP)



Unique Selling Point

- A compact, portable, and easy-to-use mydriatic wide-field digital imaging system used for the photo documentation of ocular diseases that manifest in human eyes.
- The ergonomically designed, lightweight hand piece allows for single-handed operation, and captures 120-degree high-resolution images of the posterior and anterior segments of the eye. The device acquires only digital photographs of the eye and does not provide any analysis or diagnosis.
- The contact device is easily operated by qualified clinicians and can be deployed in versatile clinical environment such as hospitals, operating rooms, and Neonatal Intensive Care Units (NICU).
- **Innovativeness:** a) Unique built-in compact warm white LED-based illumination system, b) Innovative focusing system that enables noiseless operation, c) Complex and compact optomechanics to make the probe lightweight.



Geographical Region Targeted

Europe, US, India, and Asia.



Cost

Around INR 17 lakhs plus taxes in India



Sold

>100units



Product Positioning

Paediatric ophthalmologist, retina specialists
NICUS, government SNCUS and PHCs/CHCs.



National/Societal Relevance

Every year 3.5 million babies are born premature and are at risk for developing ROP. The fundamental pathological process underlying ROP stems from incomplete vascularization at birth. Premature infants have avascular or incompletely vascularized retina at birth; ROP evolves over 4-5weeks after birth. This relatively slow evolution gives a small window of opportunity to effectively conduct retinal examinations and timely interventions to improve visual outcome and avoid irreversible blindness due to retinal detachment from progressive untreated ROP.



IP Status

4 Patents Filed: IP29153, IP29393, IP26187, IP31470



Import Substitution

The product is able to substitute competitor's camera which is sold at 1,20000 USD while neo is sold at 25,000 USD



Export Potential

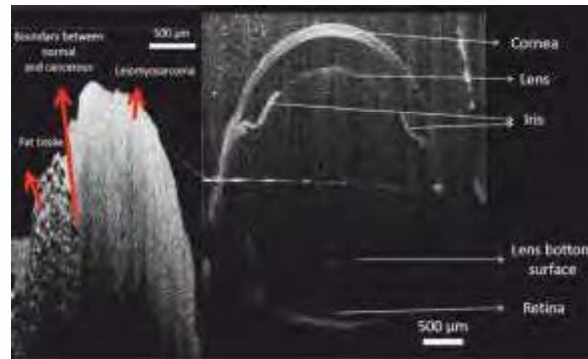
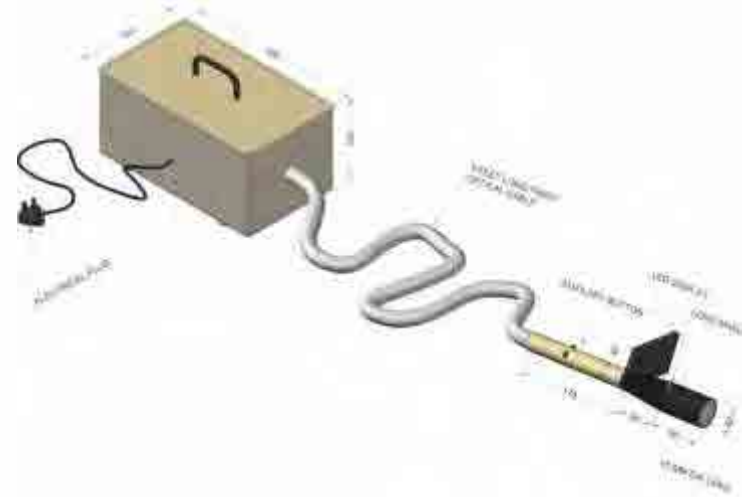
The camera has already been sold across 33 countries and it is CE and FDA approved.



Major Achievements (including awards)

Marico Innovation Foundation Awards 2018: 3nethra neo being a Low-cost Imaging Device for Eyes.

An Advanced Portable Eye Screening Device for Teleophthalmology



Unique Selling Point

- The company is developing a low-cost portable device that can be used in eye camps for early detection of blindness causing diseases especially AMD, DR, Glaucoma, and cataract.
- Currently, the devices that can perform early diagnosis are costly, bulky, and yet do not diagnose until the retinal damage is inevitable. Due to cost and bulkiness, these devices are not feasible to use them in an eye camp. Also, there is no self-diagnostic platform available for detecting ocular diseases from a single scan.
- Innovativeness:** Innovation shall create a platform that provides vitals of the eye in a single scan thus increasing the number of eye scans per eye camp. Also, the device shall be taken to each household and a quick eye screen by Anganwadi workers to identify critical diseases.



Geographical Region Targeted

International



Cost

INR < 7L



Sold

Pre-orders: 1 and 4 POs of pre-orders obtained.



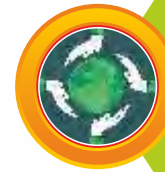
Product Positioning

- Used as a service at eye camps conducted by corporates and hospitals, Non-profit organizations and NGO's
- It also used in advanced diagnosis by multispeciality eye centers and Independent practitioners in rural and suburban regions.



National/Societal Relevance

According to world bank statistics, 66.4% of the total Indian population is rural and suburban. By reaching out to this population using the innovation, they can achieve further increase in eye screenings and hence getting a step closer to make India free from progressive blindness.



IP Status

2 Patents filling are in the process



Import Substitution

For the Current need, the possible imports are from Retcam and Optovue, which are still very bulky and costs more than 20 L INR.



Export Potential

As there is currently no portable and handheld device, the export potential is high. In developing countries, the product shall be used as a screening device in eye camps and shall be used as a point of care diagnostic tool especially in Operation Theatres and for non-ambulatory patients. Our final product shall be a kiosk-based self-screening device that can be installed in airports, pharmacy and grocery stores, which has a high demand in international market.



Major Achievements (including awards)

NIDHI PRAYAS Grant Awardee, Selected for NBEC 2019 2nd round.



anuPath™ : Point of Care Hand Held Multi-Analyte Diagnostic Device



Unique Selling Point

- It is a portable, handheld, a diagnostic device which can measure multiple analytes in human blood and urine (CKD, anemia and liver functioning) with an electrochemical test strip with a single drop of blood. It can store a large set of data (about 50,000 records) and also communicate with external devices using Bluetooth connectivity.
- The results are generated instantaneously and have shown to high repeatability and accuracy, traceable to the highest standards. The eight different tests measured by the device are Haemoglobin, Glycated Haemoglobin, Serum Albumin, Glycated Albumin, Glucose, Microalbuminuria, Urine Creatinine, and ACR.
- **Innovativeness:** The product uses Electrochemical Biosensing Platform and is unaffected by environmental variations and easy to use with no prior preparation.



Geographical Region Targeted

Both national and international markets



Cost

anuPath: Lab on Palm- INR 50,000



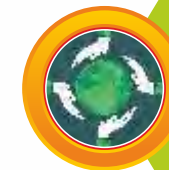
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45



Product Positioning

The product is first of its kind and is completely designed, developed and manufactured in India with the research envisioned and conceived at the IISC, Bengaluru. There are a few components/ raw materials sourced from other countries.



National/Societal Relevance

Currently about 452 million people worldwide (including over 69 million Indians) are diabetic. In India, about 20 – 40% of maternal deaths in India are due to anemia with about 58% pregnant women being anaemic. This device can be a boon since it can provide instantaneous diagnosis even in remote areas.



IP Status

Patent Granted: US20120261257A1
Patents filed: US 2017 / 0241945 A1, US 2017 / 0241996, US 2018/ 149612A1, EP3190970A1, EP3191844A2, EP3294125A1, CN107405115A, JP2017527829A, JP2017530371A, JP2018515745A, 849/CHE/2015, 201641035058, 201641031555, 201741013828



Import Substitution

NA



Export Potential

The measurement of Albumin as a POC device with instantaneous results has enabled its use with new diagnostic abilities. Interaction with ADA (American Diabetes Association) and other medical professionals has generated interest with a huge scope for exports for the novel device.



Major Achievements (including awards)

- Awarded MIT Technology Review Top Innovator under 35 (2017).
- Indian National Academy of Engineering (INAE) Innovator Entrepreneur Award 2017.
- FICCI Healthcare Excellence Award 2017.
- CII Grand Jury award for best innovation, 2017.
- Elevate100 Grand Challenge Award from Karnataka Government, 2017.
- Design Impact Award for Social Change, Titan Company Ltd. and TATA Trusts, 2018.
- DBT/BIRAC Innovator Award, 2018.
- Partnership with Astra Zeneca under Unnati Healthcare 2.0., 2019.

ArmAble: Gamified Arm Rehabilitation Device



Unique Selling Point

- The device constitutes fun and engaging games designed according to therapy requirements. The games allow the patients to perform a higher number of repetitions in a shorter time. These repetitions further create new connections in the brain by engaging the neuroplasticity of the brain and thus augment the recovery of the arm function.
- Device aims towards neuro-rehabilitation of stroke victims and motor rehabilitation of victims with upper motor deficit due to conditions such as cerebral palsy, multiple sclerosis, traumatic brain injury, fracture, frozen shoulder etc.
- Tele-rehabilitation in ArmAble connects therapist to the patients remotely through cloud platform.
- **Innovativeness:** Therapist can analyze and monitor patient's progress since patients' each movement is recorded, along with their performance data.



Geographical Region Targeted

Hyderabad, Bangalore, Mumbai, Chennai, Delhi



Cost

- Hospitals & Rehab Centres: INR 3.5 Lakh + Taxes
- For Individuals on rent- INR 10,000/month + Taxes



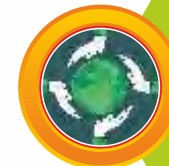
Sold

5, Pre-orders:15



Product Positioning

Hospitals & Rehabilitation Centres, Rental for Individual Patients



National/Societal Relevance

In India, the current incidence of stroke is around 18 Lakh strokes every year, along with this there are 10 Lakh cases of SCI Injuries and TBI. Post medical treatment, patients who do not undergo rehabilitation are denied a chance of recovery and are left disabled. Thus the affordable arm rehabilitation device contributes a lot to the lives of people.



IP Status

1 Patent granted



Import Substitution

Substitutes other devices such as Armeo and Able-X.



Export Potential

Scheduled in late 2020.



Major Achievements (including awards)

- Silver Award – Medical Innovation Awards.
- India Innovation Growth Program (IIGP 2.0) - Winner.
- Indo-US Endowment Fund.
- Winner “Best Digital Health Campaign” award – Healthcare Summit 2019.
- Runner up “Best Startup” award – Healthcare Summit 2019.
- First Prize Winner of German – Indian Startup Connect – Munich 2018.
- MSME Registered Startup and DIPP Recognized & Special Mention IKMC (2018).
- Gold medal for innovation -IIA International Innovation Fair 2017.

ATOM - Accurate TeleECG on Mobile



Unique Selling Point

- A hand-held, battery operated one stop solution for medical grade 12 lead ECG device and its interpretation at our in-house data center.
- Innovation provides HD clinical grade simultaneously recorded TRUE 12 lead ECG on any Android smart phone and the user can generate a detailed 3 page report in a pdf format which can be transmitted to a cardiologist through email/Whatsapp or uploaded to a cloud server for interpretation.
- **Innovativeness:** Portability, ease of use, cost effectiveness and brilliant UI/UX, minimal/no training required to use



Geographical Region Targeted

India, US, UK, SA and all South Asian countries



Cost

- Upto 50 units: USD 799/unit + shipping (Includes 1 month of free medical grade ECG analysis for a max 50 analysis per unit. Cost includes taxes).
- For 100 units and its multiple – USD 759/unit + shipping (Includes 3 months of free medical grade ECG analysis for a max 150 analysis per unit. Cost includes taxes).



Sold

200



Product Positioning

NHM programs - PHCs, State Health and Wellness Centers, Hospitals - Cardiologists, GPs, Nursing Centres, Emergency and General Medicine Departments.



National/Societal Relevance

India has created an epidemic rate of CVD, accounting for 60% of the world's cardiac diseases. Incidences of CVDs have gone up considerably for people between the age groups of 25 and 69 to 24.8%. Also, there is a heavy shortage of doctors and others medical practitioners in India. A medical grade simultaneously recorded ECG report is the first level of screening for cardiac anomalies. With deep penetration of mobile phones and mobile phone networks in developing countries, ECG on mobile phone is a very promising concept.



IP Status

- US Copyright granted
- US Patent applied



Import Substitution

Substitutes the heavy, trolley and paper based ECG machines.



Export Potential

The product has export potential



Major Achievements (including awards)

Received several acknowledgements from the doctors using the product.

Aum Voice Prosthesis



Unique Selling Point

- The company is working in the area of voice restoration for throat cancer patients and thus invented the Aum voice prosthesis, a low cost speaking device for throat cancer patients who have lost their voice to Laryngectomy (surgical removal of voice box).
- Innovation further offers benefits like: Training programs for surgeons and speech therapists at the hospital, Assistance to patients for procuring handicap smart card and certificate, 6 month warranty on product, patient support program – online and offline, Assistance to set up Lary clubs with Govt. support.
- Innovativeness:** a) one single prosthesis size that fits most of the patients, b) Insertor made up of wood is biocompatible, disposable and autoclavable (helps surgeons to carry out insertions in OPDs rather than OTs).



Geographical Region Targeted

Worldwide (at least 140 countries), mainly LIC



Cost

Device costs \$1.0, INR 3000 with a comprehensive kit



Sold

300 kits



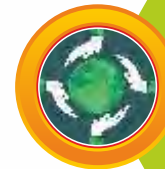
Product Positioning

Regional Cancer Centres, Government and Private cancer hospitals will be serviced through a network of distributors across the country.



National/Societal Relevance

The company envisioned the idea to create "THE AUM VOICE CHAIN", an initiative through which they aspire to reach out to patients across the globe and restore their voice and give them a second chance to live a normal life once again. Also, the device is provided free of cost for poor patients through a company's trust.



IP Status

Patents Filed: 5609/CHE/2015 and PCT/IB2016/056270



Import Substitution

The innovation substitutes competitive products which are priced between INR 35000 – 45,000.



Export Potential

High export potential.



Major Achievements (including awards)

- Winner of the DBS NUS Social Venture Challenge, Asia – 2018.
- Winner-NBEC, C-Camp, 2018.
- Successfully included Laryngectomy in handicap act, 2017 by working with Dept. of social Justice, Govt. of India.



AyuSynk: Smart Stethoscope



Unique Selling Point

- A smart stethoscope module that can be attached to conventional stethoscope making it digital.
- It enables noise filtering, sound amplification, recording & playback, visual representation and analysis of heart and lung sounds.
- Preserves look and feel of the conventional stethoscope.
- **Innovativeness:** The comprehensive system is 1/10th the cost of the existing systems.



Geographical Region Targeted

India, Africa and Europe



Cost

INR 14,000



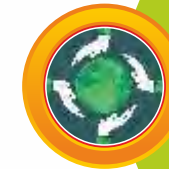
Sold

600+



Product Positioning

Telemedicine or digital health platforms, Physicians, Medical Students, PHCs.



National/Societal Relevance

- Heart and lung diseases have become the top causes of mortality in India, accounting for 1.6 and 1.2 million deaths annually, respectively (2015 data).
- The device provides a low-cost solution for early detection of heart and lung diseases.
- It can be used in PHCs to record abnormal auscultated sounds and send to expert physicians for further diagnosis, thereby overcoming the problem of low ratio of physician to number of people in India 1:1800. The developed device can be used as a cost effective tool for accurate detection of cardiac and pulmonary illnesses.



IP Status

Patent published: W02018096564



Import Substitution

Substitution of electronic stethoscopes that are mainly imported from US and China.



Export Potential

Export potential mainly in African countries



Major Achievements (including awards)

- Maharashtra Startup Week Winner 2019.
- Maharashtra AI Innovation Winner 2019.
- Vibrant Gujarat Startup Summit 2018.
- Pilot in Maharashtra and Gujarat government.
- Indo-Swiss AIT, Zurich Winner.

BigOmics Platform: Bioinformatics Sequence Analysis Platform using Big Data Technology and AI over Cloud.



- Unique Selling Point**
- BigOmics platform uses the company's proprietary technology Referral Approach Extension (RAx) (patent under process) to perform sequence alignment (Matching) which provides highest level of accuracy in Sequence Alignment.
 - Platform is built by resolving Non-Programmable (Non-Probabilistic) N-P complete problem of performing exact alignment over the large biological sequences in terms of volume and length.
 - In agriculture, the platform provides improved and accurate germplasm/genotyping analysis, marker detection and accuracy in their subsequent down line analysis to develop seeds with improved and better characteristics. This enables companies / researchers to develop reliable and high-quality seeds in lesser cost and time.
 - In Pharmaceuticals, the cost and time are reduced by reduction in the number of false positives and false negatives during drug designing.
 - **Innovativeness:** The platform can process huge NGS data with higher accuracy, reliability and biological significance as compared to existing solutions in the market.



Geographical Region Targeted
India, UK, Europe, USA, Japan, China, and Singapore



Cost
INR 2,50,000 (Annual License)



Sold
2 (Pre-Launch orders)



Product Positioning
Seed development companies in agriculture, drug discovery companies and CROs, diagnostic centres, ICAR and CSIR research labs, and biotech, genomics, proteomics, bioinformatics and NGS research labs, and academicians and researchers.



- National/Societal Relevance**
- Agriculture – Improved and high-quality seeds development based on genomic input.
 - Diagnostic – More reliability in DNA based diagnosis, genetic profiling and pre Natal-diagnostics with higher accuracy in sequence alignment.
 - Treatment – More targeted and accurate prediction of line of cancer treatment.
 - Drug Discovery - Quicker and cost-effective drug target identification resulting in lower cost of drugs.



- IP Status**
- Patent Filed: 201821004298
 - PCT Filed: PCT/IN2019/050087



Import Substitution
The innovation offers a substitution to the existing bioinformatics analysis tools, imported from providers across US and Europe like: DNASTar, Geneious Prime (Biomatters), GeneCodes, Qiagen (CLC Bio), Soft Genetics, Seven Bridges Genomics, Omixon, etc.



Export Potential
Owing to the high accuracy performance in sequence alignment based bioinformatics analysis the product has immense export potential.



- Major Achievements (including awards)**
- Won Clarion 3.0 competition by Lead Angles.
 - BIRAC Seed Fund - 30 Lakhs.
 - Received traction from clients for product validation.
 - Investors approached for investment from clarion-3.0 *(under conversation).

C3FA: A Portable Visual Field Perimeter



Unique Selling Point

- A portable visual field perimeter designed and developed by Alfaleus, which can be operated via a smartphone to perform an eye examination for Glaucoma. Unlike traditional devices that are bulky and cumbersome, C3FA is a portable head mount device based on a VR headset.
- **Innovativeness:** The device is unique in design and operates through an AI based algorithm which provides a quick screening. Further, it is ten times cheaper, a hundred times more portable and way more comfortable for the patient as compared to the competitive products.



Geographical Region Targeted

South East Asia, African subcontinent, and Latin America (Mostly developing countries with limited healthcare infrastructure and huge accessibility challenges).



Cost
INR 3 Lakhs



Sold
20 Units
(Goods sold worth INR 50 Lakhs)



Product Positioning

Small clinics, private practitioners, NGOs and Govt. hospitals with screening facilities.



National/Societal Relevance

Due to the lack of portability and high costs of the current testing methods. The present innovation can be used as an alternative in health camps, home-based clinics and in remote and rural areas for testing Glaucoma. The innovation makes glaucoma diagnosis accessible to people at the base of the pyramid and in rural areas, that otherwise would be left out. Hence, it has high social relevance. Further Glaucoma goes undiagnosed in India, in upto 90% cases. With the use of C3FA (portable and accessible device), Glaucoma can be diagnosed at early stages and may prevent blindness.



IP Status

Provisional patent filed: 201841028949



Import Substitution

CFA has a high potential for import substitution as the available conventional machines including; Humphrey Visual Field and Octopus perimeter are imported from Europe and are not only expensive for an individual to buy, but also result in high cost for care delivery to the end customer.



Export Potential

Device has a huge potential, especially in Africa, where there is a high prevalence of undiagnosed Glaucoma, people are acquiring irreversible blindness.



Major Achievements (including awards)

- Winners of Academia Industrial Training (AIT) programme conducted by IIT-B in collaboration with Swissnex and received a grant of 10 Lakhs.
- Medical Innovations Award (2018).
- TiE Smasher Award 2018.
- Made into top 10 finalists in CII healthcare Innovation award (2018).

Cervastia

1. ACQUIRE

- Automated slide scanner
- Connects to computer using
- Carries 1-3 slides / 15, 40x, 60x slides
- Small footprint (14" x 14")

2. STORE

- Compact & portable
- Ready for digital and telepathology
- Accesses images from anywhere, at anytime
- Whole slide images stored on network

3. ANALYZE

- Reported by pathologists
- Low turnaround time to the report
- Linked or image stored in web pathology

4. REPORT

- Case structure, Report, analysis & discussion
- Results are in the business system
- Digital images can be processed by pathologist or image
- Document and label images of interest
- Slide stored securely along reported results with other pathology

www.cervastia.com



CRS – Catheter Reprocessing System



Unique Selling Point

- Incredible Devices Invention Catheter Reprocessing System (CRS, Patented) is a revolutionary machine which reprocesses angiography/angioplasty catheters to reduce their cost by 99%. This makes treatment safe, affordable and accessible for millions of poor patients. CRS also prevents hospital-acquired-infection and avoids spreading of antimicrobial resistance bacteria. It also makes catheter safe to dispose of and avoid viral/disease breakout. CRS reduces biomedical waste generation by 90% and also ensure safe disposal of rest of catheters.
- Innovativeness:** CRS is one of a kind with no competitors.

Geographical Region Targeted

Pan India and other developing nations.

Cost

- INR 5L-10L
- (CRS comes in multiple variants and cost varies depending upon capacity and features).

Sold

Orders are in process

Product Positioning

B2B: Hospitals

National/Societal Relevance

Affordable Healthcare for all: it reduces cost of catheters by 99% which helps to provide accessible, affordable and safe treatment to millions of poor patients. Already, more than 2 Lakhs lives have been touched. Further there is a reduction Antibiotic Dose (CRS reduces Hospital Acquired Infection) and reduced the generation of Biomedical Waste by 90%. CRS also provides a cost effective clinically proven, fail-safe way to disinfect catheters waste at point of source itself which helps to avoid viral outbreak due to accidental pilferage of biomedical waste. Additionally, CRS promotes safe reuse, reduce carbon footprints and save water.

IP Status

Patent Granted: 311157

Import Substitution

India imports INR 272 Billion of medical goods. CRS intends to reduce 90% import of catheters and saves FOREX.

Export Potential

Safe and affordable Healthcare is a global challenge. Also world is shifting towards reuse of Single Use Devices and banning single use plastic. CRS not only make healthcare safe, affordable and accessible but also reduce biomedical waste generation.

Major Achievements (including awards)

- MIT's Top 10 Innovators under 35 age.
- Design Impact Awards 2018 by TITAN.
- Millenium Alliance Round 5.
- D. L. Shah Platinum Quality Awards by Quality Control of India.
- Won DST LOCKHEED MARTIN India Innovation Growth Programme, 2016.
- Best Innovative Medical Product of the Year 2016 at 22nd International Medical Fair.
- MARICO Innovation Award 2018.
- NASSCOM 10000 Startup and NASSCOM Social Innovation Forum.
- XLr8 AP, IC2 Institute, University of Texas at Austin, USA.
- NEXUS Startup Hub, American Center.
- Indo US Science & Technology Forum Silicon Valley Visit, USA.
- Fortis Innovation Award 2012 & 2014.
- Investment raised: 1.5 Cr (approx.).

CURA illumina360° for Early Detection of Breast Cancer



Unique Selling Point

- CURA illumina 360° employs an advanced robot and an ultra-sensitive infrared camera to provide 360° view of the breast. It is a powerful, Non-invasive (only detects heat signals from breast surface), early breast cancer warning system that could help in improving the rate of early detection and survival in women.
- The intelligent software tools in the system help in visualizing the functional changes in the breast (represented as hot and/or cold spots) for further investigation and care. By comparing these functional changes over repeated visits during chemotherapy, the treatment plan can be tailored for every woman at an affordable cost.
- **Innovativeness:** Applies to women of all age, No pain, No Touch (does not involve compression of breast for imaging), no radiation, no breast exposure, dense breasts are examined without compromise, Repeatable (automated and digital data) and Reliable (only breast under examination is being detected and examination protocol can be recreated anytime in future).



Geographical Region Targeted

India, SEA, MEA, Europe



Cost

Available on request



Sold

8 units and Pre-orders:
1 from Bangladesh



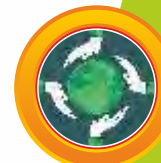
Product Positioning

- Cancer Hospital in Nagpur.
- Apollo Cancer Hospital, Chennai.
- Other cancer & multi-speciality hospital and medical institutes.



National/Societal Relevance

India's total women population is 612 million. 1 in 28 is at risk of breast cancer. Incidence has doubled over decades in younger women (age below 40 years). Nearly 1.6 Lakh of new cases of breast cancer are reported every year and the current trend of survival is only 50% due to late detection of breast cancer. The current gold standard method of screening applies to women selected by age and involves radiation exposure even for primary screening. Further Clinician availability to do breast screening to every woman in the respective population is not feasible. The usage in therapy monitoring potentially could reduce the cost of treatment monitoring by half. Hence, robotic assisted rotational breast thermography that can be operated by any trained personnel would considerably save the healthcare cost, clinician's time and life of women.



IP Status

Patent Granted: US Patent No. 9687151



Import Substitution

No other predicative or competitive device is available which is either imported or being manufactured with this technology in India and/or overseas. Thus, import substitution factor is not applicable.



Export Potential

The product helps to monitor the chemotherapy response of an individual and further helps the oncologists to customize the treatment plan at an affordable cost. Thus it has huge export potential.




Major Achievements (including awards)

- World's first Digital, Robotic, Rotational Breast Thermography System.
- CE marked.
- Medical Innovation Awards 2014.
- BIRAC Innovator Award 2017.
- Ranked as top 6 innovations in Arab health 2018.
- APAC Breast Imaging Industry: New Product Innovation Award by Frost & Sullivan, 2018 and First overseas shipment in 2018.



Digital Platform for Remote Screening and Behavioral Treatment of Autism Spectrum Disorder





Unique Selling Point

- A digital platform which provides assessment integrated behavioral therapy platform that empowers parents, schools & clinicians with treatment plan at 20% of the current market cost.
- The platform comes with an evidence based curriculum, lesson plan and teaching pedagogy in the form of training videos.
- **Innovativeness:** The digital platform can be customized through machine learning models.



Geographical Region Targeted

India, USA, Bangladesh and other APAC countries



Cost

INR 2500/month




Sold

50-70




Product Positioning

Clinicians, Schools, and Parents




National/Societal Relevance

Autism was prevalent in 1 in 10000 kids way back in 1970 and can now be seen in every 1 in 60 children. Studies suggest (Center of disease control) 1.5% of children are diagnosed with Autism Spectrum Disorder (ASD). Early intervention results in an increase of 10-15 IQ points, however, those services are not accessible and affordable. With the present innovation a user can build a customized treatment plan that can be executed by a non-expert. The innovation brings school, clinician, and parents on a common digital platform improving information symmetry and passing management of Autism condition to clinicians, parents, and teachers.



IP Status

2 patents filed for skill assessment for children with Autism from videos using a novel method of mode to mode matching.




Import Substitution

Already licensed a validated curriculum from the US. Going to develop a curriculum specific to the Indian market.



Export Potential

Ten clinics in the US are using the product. With more advanced features the innovation can penetrate the US market.



Major Achievements (including awards)

- Winners of India Innovation Growth Program (IIGP 2.0).
- Winner of Green wise Startup contest organized by Startup-India.
- Winner of Western Digital contest organized by Startup-India.
- Recipient of BIRAC BIG Grant.

Dozee



Unique Selling Point

- It is a contact-free health monitor and personal health companion. It monitors heart health, respiration, sleep cycles, stress levels and much more with a very high accuracy while an individual sleeps. It provides personalised recommendations from experts to improve health.
- Innovativeness:** The innovation has first of its kind AI Powered Meditation with Bio-feedback for quick relaxation, provides clinically relevant reports & AI powered Alert System. It has personalized solutions backed by data for health improvement.



Geographical Region Targeted

India, USA, Canada, Japan and Australia



Cost

INR 7200



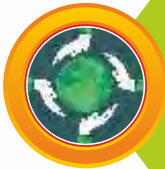
Sold

2500 units



Product Positioning

- B2B – Senior Care, Home Healthcare, Yoga & Naturopathy Centres, Hospitals and Mattresses.
- B2C – Senior citizens, Chronic Illness Patients and Sleep & Stress Affected Individuals.



National/Societal Relevance

Stress & Bad Sleep are the root causes of all grave disorders gripping our society. Dozee helps to manage sleep apnea, track heart health and respiration, stay on top of stress levels and remotely monitor health of the loved ones.



IP Status

Patents filed: (1) 201941034439 and (2) 201641003985



Import Substitution

No major players are available globally. Dozee is a first mover in the preventive and home healthcare in the Indian landscape.



Export Potential

- Dozee has CE (Compatible with European Standards) mark in line with regulatory compliance for business in 150+ countries for consumer electronics.
- Innovation has preliminary interest in healthcare market for personal health care in Africa and UAE. Major positioning in US Wellness market.



Major Achievements (including awards)

- BioAsia 2019, Top Healthcare Startup.
- MedicalI 2019 Gold award, Medical Devices.
- BIRAC BIG Grant.

ExoEnrich™: Exosome Isolation Kits



Unique Selling Point

- The technology allows enrichment of biomarkers' enriched exosomes from a variety of biofluids e.g. blood, urine and saliva etc.
- It is one of the most advanced forms of non-invasive, liquid biopsy technology for cancer diagnosis.
- **Innovativeness:** It offers most efficient and rapid assay for enrichment of exosomes from biofluid samples. Due to the rapid nature of diagnosis, more than 1000 cancer patient samples can be analyzed in a day to provide personalized diagnosis.



Geographical Region Targeted

India



Cost

- PEC-25: ExoEnrich™ Kit, 25 reactions (cell culture media)-INR 28,462
- PEC-50: ExoEnrich™ Kit, 50 reactions (cell culture media)-INR 42,883
- PES-25: ExoEnrich™ Kit, 25 reactions (serum)-INR 26,565



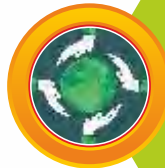
Sold

80+



Product Positioning

B2C



National/Societal Relevance

The technology will help to reduce cancer (molecular) diagnosis cost and time by 10-20 folds in addition to its non-invasive nature.



IP Status

Patent Granted: 201621040010



Import Substitution

NA



Export Potential

It is up to 10-15 million USD annually for the existing products



Major Achievements (including awards)

NA

**Fetal Lite : Fetal Heart Rate Monitor
for Women in Labor**





Unique Selling Point

- A next generation, AI-powered, Fetal Heart Rate (FHR) monitor, based on fetal ECG signal extraction technology for women in labor. Fetal Lite will help to reduce intrapartum deaths through efficient referral and better diagnosis and care for high risk babies.
- **Innovativeness:** Unique product and has advantages in usability, portability, and convenience.



Geographical Region Targeted

Across the Globe



Cost

Available on Request



Sold

1 unit



Product Positioning

Private and Public sector hospitals with maternity facilities.



National/Societal Relevance

Fetal distress is a leading indicator for fetal asphyxia during labor. Inadequate fetal monitoring, leading to undetected fetal asphyxia is a major factor in over 300,000 intrapartum deaths annually in India. While the current doppler-based devices have been available in the market for years, usability issues and the lack of skilled staff have limited the penetration of the technology in smaller birthing center. FetalLite with its unique technology (Fetal ECG extraction technology) and the resulting ease of use, aims to resolve this technology access issue.



IP Status

Patent Applied: 201841016302



Import Substitution

The product substitutes traditional imported ultrasound based NST CTGs.



Export Potential

FetalLite has a significant export potential to both developed and emerging markets. It has a significant cost advantage over the existing systems available only available in US, UK.



Major Achievements (including awards)

- Completed head-to-head clinical trial comparing Fetal Lite with GE ultrasound system.
- European CE certified.
- Winner of multiple awards in India and abroad.
- Supported by grants from Millennium Alliance and Grand Challenges.

Fitknees- An Intelligent Knee Rehabilitation Device for Disease Modification of Osteoarthritis



Unique Selling Point

- It is a wearable device that assesses and reports the progress in the rehabilitation of knee osteoarthritis and knee replacement surgeries.
- The device can be utilized in clinics or hospitals by doctors and physiotherapists to quantify essential parameters of the knee joint health based on which personalized, targeted rehab plans can be designed for each patient.
- Quantified assessment of physical rehab has scientifically proven to ensure greater compliance from the patient, quicker recovery time and build greater trust between the patient with their doctor.
- Innovativeness:** Several key features are:
 - Medical gold standardized sensors for highest accuracy
 - Low cost and highly portable for even home physiotherapy services
 - A holistic set of modalities to ensure deep insights in the rehabilitation progress
 - Our data analytics reports will improve patient retention and increase speed of recovery



Geographical Region Targeted

National for the next three years



Cost

Cost of the device for doctors: INR 45,000+ GST (*one-time asset cost*) + 50:50 revenue split on every device that is given for assessment. The cost of every test estimated per patient is INR 2000 + GST.



Sold

Pre-orders: 3 (Letter of Intent has been obtained for demo and possible commercialization).



CORES OF DIFFERENT SHAPES/ SIZES CAN BE STUCK OVER THE MUSCLES AND JOINTS BY ADHESIVE PADS



Product Positioning

B2B



National/Societal Relevance

In 2017, 15 lakhs Indians had been clinically diagnosed with Osteoarthritis, and the number was expected to increase to 60 Million Indians by the year 2050, making India the osteoarthritis capital of the world. 2 crore knee replacement surgeries are done each year in India. However, the number of registered physiotherapists in India is only 30000. There is a grave mismatch between the requirements of physical therapy in our country versus several skilled physiotherapists. There is, therefore, an urgent need to solve this problem through simple and effective technologies to make the device more accessible to patients.



IP Status

In process of filing provisional patent



Import Substitution

- The product offers substitution to bulky, expensive and machines used separately for measurement of each modality.
- Opportunity to mass manufacture device casings and pcbs with indigenous Indian manufacturers.



Export Potential

The product has export opportunities since it is a low cost and highly portable assessment device. Furthermore, the device is being calibrated against medical goal standard for equivalency to ensure accurate assessment results. Additionally, the device is unobtrusive and non-invasive, thus it will be easier to navigate the international regulatory pathways (Grade 2A classification)



Major Achievements (including awards)

- Nidhi Prayas Grant of 10 lakhs.
- WEE+ SINE IIT B + NITI Aayog +DST grant of 2.5 lakhs.
- Birac Seed Fund Investment of 30 lakhs INR.
- SINE IIT-B Women Entrepreneurship Empowerment (WEE) Award 1st Place, AngelHack Chennai.

FlexiOH: Next Generation Orthopedic Immobilization Technology



Unique Selling Point

- FlexiOH is a next generation orthopaedic immobilizer that replaces conventional cast/braces i.e. POP, GF, and Thermoplastic Braces. Unlike conventional cast, FlexiOH is washable, breathable, and light weight immobilizer that can be used for immobilization during orthopaedic treatment i.e. fractures, sprains, post-surgery, trauma, etc.
- Innovativeness:** Safer compared to conventional cast from causing serious side effects i.e would infection, and compartment syndrome, and gives superior patient comfort.



Geographical Region Targeted

India, USA, UK, Austria, Qatar, UAE, Kuwait, Taiwan, Thailand, Sri Lanka



Cost

INR 2500- 7500/ product
(Depending on size and variant)



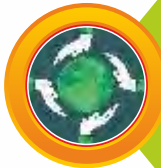
Sold

>1000 products



Product Positioning

Most of the sales occurred so far is in B2B mode



National/Societal Relevance

The product is most advanced orthopaedic immobilization technology and has potential to be used and adopted trough out world. The company has generated >25 direct employment.



IP Status

- Patent Published: European Patent-15805622.6
- Patents Filed: Malaysia-2017701612, Canada-2966711, Singapore-11201703578P, Vietnam-1-2017-01699, USA-15126572, Australia-2015344456, and Brazil- BR 11 2017 009656-0



Import Substitution

The innovation offers substitution of comparable technology imported from Germany, USA. i.e. DJO , Bregetc



Export Potential

The product has already been exported to USA, UK, Austria, Qatar, UAE, Kuwait, Taiwan, Thailand, Sri Lanka thus have potential to be exported across the globe.



Major Achievements (including awards)

Received BIRAC BIG and BIPP Grants.

Genome Health Assessment (GHA)



Unique Selling Point

- A method to detect functional changes in the genome related to life style disorders; for Diabetes, Cardiovascular, Obesity and Hypertension. It also detects the extent of Biological ageing.
- Three types of tests are carried out:
 - Screening test: Preliminary method to find the susceptibility and single nucleotide changes in an individual's genome.
 - Premium test: Perform in depth functional study on the genes which have been screened in the screening test.
 - Comprehensive test: Perform pathways and network analysis to find the complete clinical relevance and risk score for future occurrence of a disease or disorder.
- **Innovativeness:** An in-house affordable innovation which is IPR protected.

Geographical Region Targeted

Eastern India

Cost

- Screening test: INR 12000,
- Premium test: INR 18000
- Comprehensive test: INR 25000

Sold
>150

Product Positioning

B2C: Direct to Individuals and some corporate clients.

National/Societal Relevance

Lifestyle of an individual depends upon different factors such as diet, behaviour, stress, physical activity, working habits etc. Lifestyle related chronic diseases are a group of diseases that share risk factors such as unhealthy dietary choices, lack of physical exercise, sedentary behaviour and stress. Stress refers to the consequences of failure of any organism to respond appropriately to physical and chemical cues from the environment. Nowadays, evidences have been increased where people are facing chronic stress related lifestyle diseases like sudden cardiac death and other recurring cardiovascular diseases (CVD) which are found to be interrelated with Diabetes, Hypertension and Obesity.

IP Status

Patent Filed: IND/KOL/188

Import Substitution

NA

Export Potential

The innovation has an export potential for prospective expansion in SAARC countries and Middle Eastern Countries. Discussions are in progress with some clients in Dubai.

Major Achievements (including awards)

- Seed Capital Raised 1 Cr.
- Angel Investment raised 2.5 Cr.

Genomix Malaria Pf/Pv Antigen Self Detection Test Kits



Unique Selling Point

- Genomix Malaria Pf/Pv Antigen Rapid Detection Test Kit is a lateral flow based assay for the qualitative determination of Malaria Plasmodium falciparum Specific Histidinerichprotein - II (Pf HRP-II) and Malaria Plasmodium vivax Specific Lactatedehydrogenase (pLDH) proteins in human whole blood specimens. These kits were validated by WHO/FIND/CDC for their performance.
- **Innovativeness:** The innovation is an antigen detection kit, as compared to competitor kits which are based on antibody detection.



Geographical Region Targeted

India and Africa



Cost

Malaria pf/pv Ag rapid test kit costs: INR.30



Sold

Around 10 lakhs units



Product Positioning

Pathology Labs, Clinicians, individuals, NGOs playing part in public health awareness.



National/Societal Relevance

India being endemic to malarial parasitic infections, needs quick and appropriate diagnostic tools which also can be used at point of care settings where no or minimal laboratory facilities are available. The Genomix Malaria Pf/Pv rapid kit facilitates the usage of kit under any circumstances, with minimal training. The kit may also be used by any individual who wants to check himself/herself for the presence or absence of malarial infection where no medical facilities are available at an affordable cost.



IP Status

NA



Import Substitution

NA



Export Potential

There has been a steady increase with a rate of 60% every year in the number of Malaria diagnostic tests performed globally. Currently, the market value is estimated to be in the \$70 to \$80 million range. In the global market the value of the proposed kit is varies from 2 to 3 US dollars. Genomix Malaria Pf/Pv Rapid Test Kit is suitable to normal climate and can be performed at resource limited areas and addresses all the diagnostic problems to detect Malaria at point of care areas in worldwide, hence having a huge export potential



Major Achievements (including awards)

Supplied to Foundation for Innovative New Diagnostics (FIND), Global Malaria Programme conducted by World Health Organization, WHO Malaria Rapid Diagnostic Test (RDT) Product Testing Programme, WHO/HTM/GMP, 20 Appia Avenue, and 1211 Geneva, Switzerland.

Genomix Paratuberculosis Ab Rapid and ELISA Kits



Unique Selling Point

- Genomix Paratuberculosis Rapid and ELISA Antibody Detection Test Kits are a Lateral Flow and Indirect Ab ELISA based point of care assays for the qualitative determination of Paratuberculosis specific antibodies in whole blood/Serum samples of livestock and in human samples at resource limited areas.
- **Innovativeness:** The kits may also be used by any individual who wants to check for the infection of ParaTB in an animal where no veterinary medical facilities are available at an affordable cost.



Geographical Region Targeted

India, SEAR, Europe, US



Cost

- INR 100/rapid kit
- INR 6000/ELISA kit



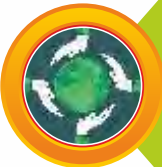
Sold

Paratuberculosis Ab Lateral flow diagnostic test: 10,000 in numbers.
ELISA Test Kits: 100 in numbers.



Product Positioning

State Animal Husbandry Departments,
Veterinary Clinicians, Dairy Farms, Farmers.



National/Societal Relevance

India is having highest number of livestock, needs quick and appropriate diagnostic tools for diagnosis of important livestock diseases at point of care settings, where no or minimal laboratory facilities are available. The Genomix Paratuberculosis rapid and ELISA kits facilitates the usage of kit under any circumstances, with minimal training.



IP Status

NA



Import Substitution

As the Genomix RDT and ELISA kits for Paratuberculosis are cheaper than that are available in the market and at par with the quality, thus the products can be a better alternatives to the imported kits.



Export Potential

The products have good export potential as the kits are very cost effective and affordable.



Major Achievements (including awards)

NA

Hand Cranked Defibrillator for Sudden Cardiac Arrest



Unique Selling Point

- World's first hand cranked defibrillator has been developed which works even in rural and remote areas without electricity. It is battery-less and maintenance free. Designed and engineered to international standards like IEC60601-2-4 etc. and to EN1789/ AIS125 (for ambulance vibrations, high temperatures, shock etc.). Comparable devices are 4 to 15x expensive.
- Innovativeness:** Unique product available in the market. Also, the charge-discharge circuits in the product are rated for 16,000 cycles (6x compared to what the international standard demands).



Geographical Region Targeted

South & SE Asia, Africa, S. America and Selected segments in EU, NA and Japan



Cost

INR 89,500 in India (Inclusive of GST 12%)



Sold

Sold: 19
Pre-orders: 10-15



Product Positioning

- Hospitals/nursing homes, ambulances, armed forces, primary health centers/ community health centers/ district hospitals and Smart Cities.
- 4 Letter of Intents have been received from Smart Cities.
- Product deployed in Gujarat, Maharashtra and Tamil Nadu.



National/Societal Relevance

Sudden cardiac arrest kills 6-7 lakh people annually in India alone. The rate is 3-4x higher compared to the developed countries. The main reasons are: lack of stable grid electricity and affordability. Similar is the situation in Africa, SE Asia, and S. America. The Defibrillator built by Jeevtronics has built in power source and will work in rural remote villages too. The cost is also 1/4th of the big brands. This is a great boon for PHCs, community health centers, sub-centers and even ambulances which do not have inverters+ batteries (99% of Indian ambulances). The defibrillator if deployed across the country should reduce death rate due to sudden cardiac arrest.



IP Status

- Patent Granted: US Patent No. US6597949B1
- Patents Published: (1) 3368/MUM/2015 and (2) 3367/MUM/2015
- Design Registered: 289404



Import Substitution

Presently, Indian market for defibrillators is about 70,000 units annually. 80% of these are either refurbished devices (10 to 30 year old) taken from abroad or from low cost countries. Jeevtronics San Mitra 1000 HCT defibrillator provides a substitution to all these poor quality, unsafe devices. This will save India a minimum of USD 100 million per year in imports.



Export Potential

The product will benefit all low and middle income countries (LMIC) where the death rate due to sudden cardiac arrest is 1.8 million people annually. Worldwide the market for defibrillators in USD 11 Billion. Thus great export potential exists for the product.



Major Achievements (including awards)

Won the Indo-US Science & Technology forum grant.

ILLUMINATE™



Unique Selling Point

- First ever imaging device that can non-invasively assess wound infection and gives a colour coded wound map by spatially mapping pathogens on the infected area and classify them into its gram-type. The device captures multi spectral images of the wound region and uses machine learning algorithm on these spectral images obtained to detect and also classify the infecting pathogens (bacteria and fungus). Pathogens are classified based on their gram/genus type and the level of infection is assessed. It also tracks the wound size and depth.
- All these parameters aids the attending physician in rapid, evidence based accurate cleaning of wounds, accurate sampling of the infected area, guides surgical procedure such as debridement, tissue grafting and also in right first line treatment protocol.
- **Innovativeness:** The pathogen is identified in 2 minutes as compared to traditional visual inspection followed by culture method which takes up to 3-5 days for a definitive result.



Geographical Region Targeted

India , Africa, USA and UK



Cost

INR 4.5Lakh



Sold

1 unit and a few pre-orders



Product Positioning

B2B Sales in Mumbai and Chennai



National/Societal Relevance

More than 420 million people around the world suffer from Acute, chronic and traumatic wounds. The problem is more compounded in India as we lack a comprehensive Wound Management System: More than two third of lower limb amputations are due to ulceration on the foot that are not treated and 7- 10% of Hospitalised patients develop skin infections in ICU wards. Early assessment and management of infections caused by bacteria and fungus is crucial to accelerate wound healing, failing which will lead to delayed wound closure, amputation and mortality. Current techniques of visual inspection aided infection analysis are error prone. Culture method is considered the gold- standard technique but the process is laborious, time-consuming, and requires a BSL-2 facility for identification, thus leading to prescription of generic antibiotics resulting in antimicrobial resistance.



IP Status

- Patent Granted: 323440 (IN)
- Patent Pending: European Patent- 18772393.7, US Patent- 16/496,390, SG Patent-11201908815S and Canada- PCT/IN2018/050161



Import Substitution

NA



Export Potential

The innovation has export potential in USA and UK.



Major Achievements (including awards)

- Part of Google Launchpad accelerator (Top 10).
- Featured in Forbes 2019 W Power.
- Investment from Menterra Venture Funds.

JANITRI



Unique Selling Point

- KEYAR is an affordable, easy to use and wearable intrapartum Fetal Heart Rate (FHR) & contraction monitoring device. The reusable/disposable sensor patch sticks onto the mother's belly to read up contractions and FHR. The device monitors both the parameters, analyzes the pattern and further gives color-coded/sound alert if fetus is in distress.
- KEYAR communicates with the innovator's mobile application DAKSH which is an intrapartum monitoring mobile application for an automated partograph generation. DAKSH allows the staff nurse to register and enter vital signs of a pregnant woman. It reminds the staff nurse to monitor the labor vitals, as per the standard WHO intrapartum protocol.
- **Innovativeness:** The device also displays FHR and uterine contraction in a secure format that is interpretable by a low skilled health worker as compared to existing cardiotocography (CTG) device where the output is displayed in a graphical format which further required a skilled health worker to interpret from those graphs.



Geographical Region Targeted

India and Africa



Cost

Available on request

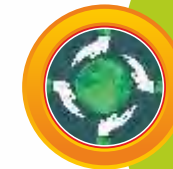


Sold

 DAKSH – 115
 KEYAR with DAKSH - 15


Product Positioning

- Hospitals, obstetricians, nursing home, and healthcare foundations.



National/Societal Relevance

- During intrapartum period, delay in the diagnosis of fetal distress leads to neonatal morbidity & mortality.
- Maternal and neonatal mortality/morbidity is the key challenge in India. More than 99% of maternal and neonatal mortality/morbidity occur in developing countries like India and Africa. In current practices, staff nurses measure the FHR by stethoscope/fetoscope/fetal Doppler and take the decision of any intervention/referral in case FHR goes beyond threshold value. They do not consider FHR & uterine contraction together, that leads to delay in early detection of fetal distress and further leads to delay in early referral to higher health facility. An affordable & easy to use labor monitoring device for early detection of fetal distress for low resources healthcare settings has the potential to prevent neonatal mortality & morbidity.



IP Status

 Patent Filed: 201611000978
 Patent Granted: 305688


Import Substitution

The innovation substitutes CTG (cardiotocography) device.



Export Potential

The product has export potential in developing countries. Pilots have already been started in Ethiopia.




Major Achievements (including awards)

- Silver winner at MediCall Chennai 2019 (July 2019).
- The 10 Most Prominent Healthcare Companies in 2018 by PrimeView (January 2019).
- Top 15 in Qualcomm Design in India Challenge 2018.
- Top 8 innovators of ASME iShow 2017 India.
- The 10 Most Admired Medical Device Companies in 2017 by InsightSuccess.
- Winner of Falling Walls Labs 2016 India. Presented India in Falling walls.


LungIQ : Precision Insights from Lung CTs






Unique Selling Point

- LungIQ is a holistic artificial intelligence-based application for the diagnosis and monitoring of respiratory conditions. The solution currently enables early detection of lung cancer, characterisation of chronic obstructive pulmonary diseases and monitoring of interstitial lung diseases.
- Innovativeness:** The innovation has been developed by using large proprietary datasets with customized algorithms for detection, quantification and diagnosis.




Geographical Region Targeted

India, SEA, EU, and US



Cost

The product is available for sale at an annual subscription model starting at INR 6lakhs/yr
(Cost varies based on the volume of patients at the hospital or diagnostic center).



Sold

22 units



Product Positioning

Hospitals, Radiology Diagnostic Centres & Pulmonology Clinics.



Import Substitution

NA



Export Potential

The innovation has export potential due to the presence of huge number of respiratory patients across the globe.



National/Societal Relevance

More than 120 million patients in India suffer from respiratory conditions with the overall number of pulmonologists is as low as 3000. The present innovation can potentially enable democratized access to high-quality care for all patients.



Major Achievements (including awards)

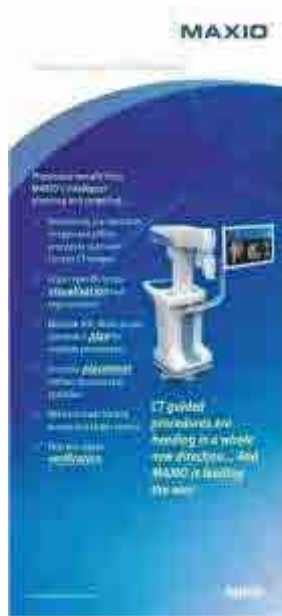
- Received Amazon AI Award in Healthcare.
- Indo-Sweden Healthcare Innovation Challenge Awardee.



IP Status

4 Provisional patents are filed

MAXIO™ : Planning and Targeting for CT& PET CT Guided Procedures



Unique Selling Point

- MAXIO™ is an image-guided, physician controlled stereotactic accessory to a Computed Tomography (CT) system, intended for the stereotactic spatial positioning and orientation of an end effector and instrument guide to assist in manual advancement of one or more instruments such as rigid straight needles and probes during CT guided percutaneous procedures on organs and anatomical structures in the thorax, abdomen and pelvis.
- **Innovativeness:** The innovation has several unique features including Robotic navigation vs instrument tracking, no manual intervention to align treatment instrument with planning, quicker registration, inexpensive single-use consumables, and largest installed base globally.



Geographical Region Targeted

Currently India and APAC Russia, Europe and the USA in the future



Cost

International markets - USD 350,000 onwards
Indian markets - INR 15 Million onwards



Sold

100+ products globally including ROBIO & PIGA



Product Positioning

Interventional Radiologist
Product has already been installed in top hospitals in Asia Europe with clinical publications by users.



National/Societal Relevance

Global customer base with USFDA, CE, and CFDA regulatory approvals to sell in US Europe and China in addition to India.



IP Status

US Patents:

1. US 8,401,620 B2 – Needle Positioning Apparatus and Method.
2. US 8,613,748 B2 – Apparatus and Method for stabilizing the Needle.
3. US 8,774,901 B2 – Needle Positioning Apparatus and Method.
4. US 8,958,913 B2 – Electronic Docking System and Method for Robotic Positioning System.

Indian Patent:

5. INDIA 278179 – Needle Potioning Apparatus and Method.



Import Substitution

The innovation offers a so far superior substitute for Navigation devices that use Optical or Electromagnetic based tracking technologies.



Export Potential

The product has already been exported. China is the most significant potential market because of incidence of liver and lung cancer.



Major Achievements (including awards)

- FICCI R&D Award for innovation, 2014.
- Biotech Innovation Award 2012 from the Government of India.
- Engineering Exports Award 2012 &TiE Chennai Entrepreneur Award 2012.
- Red Herring Asia Award, for product innovation 2010.
- Frost & Sullivan "Product Innovation Award 2009" .

Nano-AgCide Technology



Unique Selling Point

- WIB's Nano-AgCide technology is a unique antimicrobial additive which can be incorporated in any type of materials like plastics, rubber, fabric etc. Through the use of the additive; medical devices and consumables becomes antimicrobial by themselves. This would reduce the spread of infection in hospitals and reduce the total hospital acquired infection rate by more than 40%. The additive's activity is not affected by temperature, humidity or use of solvents, making it easy to incorporate in production set-up. Moreover, there is no additional cost burden to manufacturer.
- Innovativeness:** a) Versatile: Nanoparticles are stable in various solutions; organic solvents, cationic detergents, and oxidizing / non oxidizing disinfectants, b)Manufacturing: Manufacturing process is simple, cost effective, easily scalable, one pot synthesis, fast and does not require any special conditions, c)Efficacy: The nanoparticles possess antimicrobial activity against gram positive and gram negative bacteria and fungi ,and d) Cost: Implementation of technology will have only additional 0.1-1% of manufacturing cost, providing huge range to beat the price of competitor.



Geographical Region Targeted

India and Southeast Asia



Cost

SilvoClean: INR 450 /500 ML bottle.



Sold

Pre-orders Available



Product Positioning

B2B: Manufacturers of medical consumables



National/Societal Relevance

Hospital acquired Infections are affecting 15 Million people worldwide and it is a cause of ~6% hospital deaths. The reasons behind include: Improper disinfection practices, invasive associated infections and bacterial resistance. In particular, medical consumables and devices carry most of the germs on their surfaces. There are currently no means of cleaning these consumables once they are used. For example, a urinary catheter once inserted cannot be cleaned or disinfected by any means and so is always prone for infection. There are many other such medical devices viz. IV cannula, suction tubes, urinary stents etc. Thus, It is quintessential to have all these medical devices be antimicrobial by themselves.



IP Status

Patent Filed: 201821048846



Import Substitution

NA



Export Potential

Medical consumable is a global market of staggering \$500 Billion. It consists of products like, Gloves, Catheters, drapes, clothing etc. Antimicrobial devices and consumables is an opening market which will eventually replace the existing market with an anticipated growth of 7-10%.The company is currently partnering with global marketing and trading firms to market out technology solutions overseas.



Major Achievements (include awards)

Asian Association of Business Incubation (AABI) torch award



Nasofilters : A Nano-Respiratory Disposable Nasal Filter



Unique Selling Point

- The company leads in the production of the most affordable bio-safe nanofibers with its proprietary polymer technology. It is the first to commercialize bio safe nanofiber-based products in India, to launch the products in the Indian market with affordable nanofiber technology and first-mover advantage.
- The first product Nasofilters, is the first-ever non inserted, hypoallergenic and self-adhering nanotechnology-based respiratory disposable nasal filters, which sticks to the user's nasal orifice, unlike traditional surgical masks which cover the half of the face and produces discomfort while wearing.
- The company is selling other products also like Nasomask, Pollution Net, and G3 and F7 grade industrial filters along with Nasofilter.
- Innovativeness:** Filter media in the product offers novel features like extremely high efficiency at low-pressure drop giving rise to high value of filter quality as compared to the commercially available filter media. Additionally, it is made up of natural materials, which are non-irritant, bio-compatible & biodegradable. The current product provides filtration of not only 2.5pm aerosols but also to bacteria, viral infections, and pollen allergies at cost five times lower than existing competing products (Global Nasal Filter Report 2017).

Directions to Use Nasofilters



Geographical Region Targeted

The company has a presence in 22+ countries including: USA, Mexico, France, Belgium, Spain, UK, Cyprus, Saudi Arabia, Egypt, UAE, Iran, Sri Lanka, Madagascar, Australia, Nepal, Bangladesh, Vietnam, Nepal, New Zealand, Japan, China, Taiwan, Pakistan, Myanmar, and others.



Cost

- 1) Nasofilters: INR10 per piece
- 2) Nasomask: INR50 per piece
- 3) Pollution net: INR200 per sqft
- 4) Nanoclean AC filters: INR399 per piece
- 5) HVAC Filters: INR 150 per sq meter



Sold

5.1 lakh in over 22 countries



Product Positioning

- Individuals like; walkers and joggers who can be exposed to pollution, pollen, exhaust, insects, dust, smoke, bacteria, viruses, etc.
- It also widely used in sanitization industry, insect-infested environments, dusty or sandy environments, painters, a chemical industry, construction workers, bike riders, skiers, fertilizing, crop dusting, exterminating, etc.



National/Societal Relevance

Nasofilters is developed to save daily commuters from the harmful effect of bacteria, viral infections and tiny suspended particles emitted from vehicles, coal-burning power plants or factories and hence avoid respiratory disease, heart problem and lung cancer, especially keeping in mind 2.5pm concentration as well as pollen allergies. The innovation offers a protection device that not only protects the consumers from the air pollution as well as is comfortable to wear for longer duration even in hot and humid conditions.



IP Status

Patents filed: 1) 201711033337 and 2) PCT/IB2017/057092 (201611031331)



Import Substitution

NA



Export Potential

60% of the total sales have been done from the exports. The highest consumers are from Thailand, Vietnam and Middle East countries.



Major Achievements (including awards)

- "Startup National Award" 2017 by President of India.
- "Top 25 technical startups in the world" by the Korean government through K-startup grand challenge.
- Top amongst startup, Smartfifty program, IIM Calcutta & DST.
- Facebook Startup Day Award 2018.
- Innovator Entrepreneur Award 2018, INAE.
- Top 10 Startups, LevelNXT by PWC, FICCI, and CNBC.
- Total funding raised: 4.75 Crores from Sanjay Mariwala from Omniactive Health Technologies, PitchRight Ventures, Lets Venture, 91 SpringBoard, Rohit Mohan Pungalia from Soch Foods, Arvind Construction.



NavAlbumin: Recombinant Human Albumin



Navya's Recombinant Human Albumin

 Come Co-develop in India! 

NavAlbumin'ated formulations & passive homing therapies!!

Why NavAlbumin

- ✓ Animal component free
- ✓ Consistent quality, high purity
- ✓ Convenient handling formats – Liquid or lyophilized
- ✓ Convenient concentration formats –
 - o Liquids - 5%, 10%, 20%
 - o Lyophilised – 1g to 100g format

Applications

- ✓ IVF media
- ✓ Stem cell media
- ✓ Cell culture media for biopharmaceuticals production

Upcoming application possibilities

- ✓ Nanoparticle delivery of small-molecule drugs
- ✓ Medical device coating
- ✓ Albumin gel formation for products



Unique Selling Point

- The Company has developed a novel high yielding process for expression and purification of recombinant human albumin using its modified strain of *Pichia pastoris*. Components of the process have been patented globally.
- The product can be used both as a formulation agent and cell culture reagent
- **Innovativeness:** Key features of the innovation includes: a) Tunable Thiol ratio - makes it to use as formulation agent, b) Very high purity ensures no chance of cross contamination from the other components normally present in plasma derived albumin, c) Available via online channels also (by Dec 2019)

Geographical Region Targeted

India, USA, China, Japan, EMA, and Indonesia.

Cost

For small volume (upto100g): INR 2000-2500/g for both formulation agent and cell culture reagent
(Larger the volume, lower is the cost per unit in the above pricing range. Taxes and shipping charges are additional. Prices are subject to changes based on input costs. For bulk purchases (in kgs), costs will be on case to case basis).

Sold

The product has just started sales process.

Product Positioning

The product has already been enquired for various applications by following customers:

- Pharmaceutical companies for the development / co-development of novel formulations
- Vaccine companies : as a formulating agent
- Biologics/Stem cell culture/Regenerative medicine companies want to culture specific types of cells
- IVF hospitals : for IVF processes

Additionally, Pharmaceutical companies that want to enter into partnership with the innovator so as to market the NavAlbumin as a drug in India and Global markets after completion of Human Clinical Trials.

National/Societal Relevance

Human Plasma derived Albumin is currently in use as volume expander and used in several indications like major bleeding incidents, major surgeries, Liver cirrhosis etc. India has the potential to be the second largest market in terms of volume globally. However, the market for Albumin in India is severely constrained due to lack of Availability of sufficient pooled human plasma to cater to the needs of the increasing population and Unpredictable availability of the plasma sourced Albumin. The present innovation helps to overcome these problems through offering : a) A Predictable supply (since it is produced by well controlled industrialised processes), b) Safe Product, since the product is expressed in yeast that is well characterised and free from any animal derived material and c) High yield which ensures that the costs are kept in control

IP Status

Patents: 1)PCT/IB2016/050001, 2)US10,377,812B2 and 3) EP16732884.8

Import Substitution

Yes, There is a significant short of supplies of Albumin in the India market today.

Export Potential

Potential for appx \$ 200m per annum.

Major Achievements (including awards)

- Highest recorded fermentation yield.
- Very high purity of the product with high recoveries.
- Test marketing of the product has begun and the product has been tested at independent laboratories with good results for formulation and cell culture/stem cell culture market.

NeoBreathe Easy to Use Pedal Operated Infant Resusciator



Unique Selling Point

- NeoBreathe helps to deliver artificial breaths to newborn babies that fail to breathe. Being pedal-operated it frees one hand of the operator. This reduces leakage by half and improves ventilation by 20%. Clinical trials show reduced time to spontaneous ventilation and reduced need for mechanical ventilation. NeoBreathe allows a single person to give full CPR.
- Innovativeness:** Key features are:
 - World's first pedal-operated resuscitation system.
 - Frees one hand, two-handed mask holding, leakage halved ventilation improved.
 - Superior multitasking, single person CPR.
 - Integrated functions: Suction, Pressure gauge, Enhanced pressure safety, PEEP delivery, broad O2 regulation.
 - No battery/ electronics/ electricity/ air compressor/ electric blender needed, Operates manually on room air with or without oxygen from a tank.
- Fully reusable.



Geographical Region Targeted

India, Africa, South America, South East Asia



Cost

Available on Request



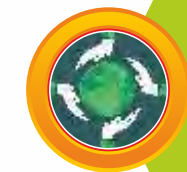
Sold

> 200 units sold in India and Africa



Product Positioning

UNICEF, WHO, State Governments, Hospital Chains, Pvt. hospitals



National/Societal Relevance

India has a dismal Infant mortality rate of 33/1000 live births. Birth Asphyxia is responsible for 20% of these deaths – all of which are preventable by newborn resuscitation. Resuscitation is difficult to perform. NeoBreathe, being significantly easy to use, empowers frontline health workers to resuscitate newborns effectively. Thus it has the potential to reduce India's IMR by up to 20%.



IP Status

Patents Filed: India, EPO, USPTO



Import Substitution

The leading advanced resuscitation system is imported from New Zealand. We are soon launching a settable PIP feature, making the device equivalent to this device, at half the cost.



Export Potential

All deaths from birth asphyxia are preventable by definition. Thus the vast majority of these deaths occur in LMICs. Therefore any country that witnesses infant deaths due to lack of skilled birth attendants is a target country.



Major Achievements (including awards)

- Received BIRAC National Technology Award from Hon'ble President of India.
- Raised Grants from BIRAC, BMGF, USISTEF, GCC, Villgro, WIN Foundation, and EWEC marketplace.

Net4Medix®: Telemedicine Platform



Unique Selling Point

- A cloud-based system with apps on Android, iOS and web for patients and their healthcare providers. It is a multi-specialty system intended to be used by doctors/caregivers to receive diagnostic data from the patients and provide related consultation even remotely.
- The diagnostic data can be entered manually as well as by connected point-of-care devices. Some examples of devices are glucometers, BP monitors, ECG machines and imaging devices such as the Smart Scope®. Artificial Intelligence algorithms are available to provide guidance to doctors at screening or diagnostic stages.
- **Innovativeness:** Innovation provides support for Multiple Super Specialties



Geographical Region Targeted

India



Cost

INR 13,000/500 patients
(Annual Subscription)



Sold

50



Product Positioning

- Public Health Sector: Civil Hospitals, PHCs, RHCs, Municipal Hospitals and Dispensaries, ESIC Hospitals, AFMC and Command Hospitals, Railways Hospitals and Govt. Medical Colleges
- Private Health Sector: Hospitals, Polyclinics, Specialty Clinics and Medical Tourism



National/Societal Relevance

- Due to the limited availability of medical resources in peripheral/rural areas, people living in these areas are forced to travel to the urban THCs for even basic diagnostic investigations and subsequent follow ups for treatment.
- Also, Non-communicable diseases (NCDs) such as diabetes, cardiovascular ailments, hypertension, endocrine diseases, cancers of any type, ophthalmological issues etc. require both (a) routine screening tests and (b) regular follow ups with the expert. However, both these are not possible for a common resident of the said rural area due to prohibitive costs of travel, wait time and investigative process itself.
- The Innovation aims to provide affordable and practically useful screening tests with mobile-connected screening devices and facilitate easy follow ups through mobile app. This is where the Net4Medix® system helps by providing a virtual platform for patients and their assigned healthcare providers to connect for regular updates and care.



Export Potential

NA



IP Status

NA



Import Substitution

NA



Major Achievements (including awards)

8000+ patients are supported by their healthcare providers.

NEURO TOUCH



Unique Selling Point

- It is a Point of Care, multi-parameter (4 tests in 1), portable screening device for peripheral neuropathy. It helps the physician to perform basic screening tests for neuropathy – the monofilament test, vibration perception test, hot and cold perception test and skin temperature measurement.
- Reports are generated on a cloud server via wireless data transfer after the tests are completed.
- **Innovativeness:** As compared to the present innovation, competitive products available are bulky, not portable, expensive and need trained healthcare workers to operate the device



Geographical Region Targeted

India, South East Asia, Gulf Countries, Europe, and America



Cost

INR 2 Lakhs



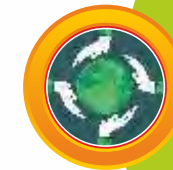
Sold

40 units



Product Positioning

B2B: Hospitals & Clinics – Diabetologists, endocrinologists, physicians, GP, neurologist, hospitals and diagnostic centers.



National/Societal Relevance

In India, 72.946 million people suffer from diabetes (International Diabetes Federation). Diabetic Peripheral Neuropathy (one of the severe complications of diabetes) is the nerve damage in hands, arms and legs. Approximately 30% of the diabetic population in LMIC suffer from Diabetic Peripheral Neuropathy (DPN) (The epidemiology of diabetic neuropathy D Ziegler, a, F.A Griesa, M Spülerb, F Lessmann). It results in loss of sensation and related problems can make the patient prone to diabetic foot ulcers, which left untreated, can lead to amputation. DPN in the foot can be prevented by early diagnosis. Through the present innovation the diabetic patients can be screened for symptoms of DPN and so it can be prevented.



IP Status

- Provisional Patent Filed: 201641020791
- PCT Filed: PCT/IN2017/050241
- National Phase Application- US Patent Filed: 16/310,184
- National Phase Application- Indian Patent Filed: 201947001409
- National Phase Application- European Patent Office: 17812899.7



Import Substitution

NA



Export Potential

Neuro Touch has been well received by physicians globally. The company has received sales queries from SAARC, SE Asian, Gulf, American and European countries. NEURO TOUCH is CE Certified and currently in the process of applying for Free Sale Certificate. The export shall be started by January 2020.



Major Achievements (including awards)

- NASSCOM Desing4India Award – 2018.
- Medical Innovation Award 2017 – Slive Plaque.
- Karnataka IT.Biz Top 25 Innovators Award 2016.
- Healiat 2016 Winner.
- CAMTech – Marico Innovation Foundation Diabetes Innovation Hack-a-thon Winner.

Noxeno: Nasal Foreign Body Extractor



Unique Selling Point

- It is the first medical device designed, and developed specifically for easy, safe and quick (in first attempt) removal of anterior nasal foreign bodies (NFBs) in children. It has a dedicated light for enhanced visualization, a spring-loaded hinge for safe and easy use and a modular design that allows for sterilisation and re-use.
- Noxeno is designed to allow medical professionals of all skill and experience levels to quickly and safely remove NFBs at the point of care. This innovative instrument saves time and effort, while being accessible to the masses.
- **Innovativeness:** Specific features of Noxeno include; the light, the modular design and sterile sheath.



Geographical Region Targeted

Emerging markets



Cost

Available on Request



Sold

25 units



Product Positioning

B2C: General Practitioners, Paediatricians and ENT professionals, in both public and private institutions/clinics.



National/Societal Relevance

25 Million Cases of nasal foreign bodies (NFB) occur in India each year. Typical NFBs include batteries, beads and nuts. Children are typically first taken to Paediatricians or GPs and then referred to ENTs. However, in rural areas lacking a local ENT doctor for referral, these cases are handled by the GPs/Paediatricians who often lack the tools and experience to perform the procedure safely and effectively. The result is a 70% failure rate in the first removal attempt and resultant clinical complications (e.g., aspiration) which often require referral to larger hospitals for surgical removal.



IP Status

Patent Applied: India 3838/DEL/2012



Import Substitution

Noxeno's re-usable design (along with sterile disposable sheath) reduces the cost per patient to 5% the cost of the Katz Extractor- the only other dedicated NFB device available in the market.



Export Potential

The product has significant potential for export. The healthcare systems in countries in Africa, South-East Asia and South America would have a need for the product.



Major Achievements (including awards)

- Completed 2 clinical trials of 60+ patients in total with excellent results.
- European CE certified.
- 30+ Hospital demos completed.
- Winner of multiple awards in India and abroad.
- Product was launched by Health Minister, Dr. Harsh Vardhan.
- Development supported by BIRAC grants.

OmiX Isothermal Amplification(iAMP) Technology for Rapid Detection of Infections and Antibiotic Resistance



Unique Selling Point

- OmiX provides molecular detection of Sepsis, Respiratory Infections, Neuro Infections and Antibiotic Resistance Detection based on its platform technology.
- The OmiX iAMP Platform is based on novel, proprietary, isothermal, room-temperature stable amplification reagents, robotics for extraction and assay setup and analytics to manage, track and analyze all samples.
- With minimal sample handling, minimally trained manpower requirement and low risk of contamination, the OmiX platform is taking molecular diagnostics out of special purpose molecular laboratories to near point of care.
- Innovativeness:** Molecular tests based on 10x more sensitive isothermal amplification than RT-PCR. Further, through Robotic Sample Processing Software; sample tracking is possible from receipt to result.



Geographical Region Targeted

Pan India (currently)



Cost

Tests range: INR 5000-20,000



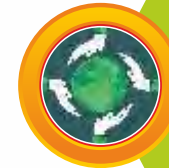
Sold

25 units



Product Positioning

Hospitals and Diagnostic Labs.



National/Societal Relevance

Antimicrobial Resistance (AMR) has become a crisis across the world with India at the epicentre. In India, the mortality due to AMR is reported to be 13% for in-patients and 25% or higher in intensive care units. With ~5 million ICU patients treated in India every year and ~100 million admitted to hospitals, there is a need for rapid, accurate and cost effective test for AMR to save lives.



IP Status

Patent Filed: 201641040335
PCT Filed: PCT/IB2017/057387



Import Substitution

The OmiX iAMP system provides a substitution for real-time PCR based closed systems used in the diagnosis of infections (e.g. Biofire)



Export Potential

The OmiX iAMP platform is particularly designed to work in low resource settings for the rapid diagnosis of infections. The innovation has high export potential to any region of the world.



Major Achievements (including awards)

- Winner - 1st Unitus StartHealth Challenge (2015).
- BIRAC Ignite Fellowship (2016).
- Karnataka Top Tech 25 (2016).
- Invited to Rashtrapati Bhavan for Innovate India (2017).
- BIRAC-TiE Women in Entrepreneurship (2018).
- NESTA BOOST Award (2018).
- Pre-Series A Investment from Menterra Ventures and Artha Lesing.
- Supported through GCE-India under Grand Challenge India Initiative.

OncoDiscover® Liquid Biopsy Technology



Unique Selling Point

- OncoDiscover® is a proprietary technology developed for detection and enumeration of circulating tumor cells in peripheral blood. The term 'Liquid Biopsy' refers to the sampling and analysis of tissue such as blood. This platform is designed for specific targeting, rapid isolation and imaging of cancer cells. The platform consists of the OncoViu® Liquid Biopsy Kit, a bio-functionalized magneto-polymeric-antibody system that is synthesized through series of chemical reactions.
- The detection and enumeration of circulating tumor cells (CTCs) have shown significant clinical utility concerning prognosis in breast, colorectal and prostate cancers.
- CTCs as a 'virtual and real-time biopsy' has clear potential to facilitate exploration of tumor biology, and in particular, the process of metastasis.
- Innovativeness:** Current technologies face problems, including reduced sensitivity, time-consuming, expensive, false positives/negatives, etc. However, the present innovation is a novel and efficient platform for detection of Circulating Tumour Cells (CTC) from peripheral blood of cancer patients.



Geographical Region Targeted

India



Cost

Cost of test: INR 15000 + taxes



Sold

100



Product Positioning

Hospitals



National/Societal Relevance

India had 1.8 million people living with cancer within five years of diagnosis in 2012. Official data show there are only about 1000 trained oncologists in the country and the ratio of oncologists to cancer patients is about 1:2000 compared to a 1:100 ratio in the USA. OncoDiscover® Liquid Biopsy Technology is presently available to oncologists in India with affordability as it provides critical information about disease progression and potentially can act as a personalized diagnostic tool.



IP Status

Patent published: WO 2016/132265



Import Substitution

This technology was an unmet need in India. OncoDiscover® Liquid Biopsy Technology is the first indigenously developed technology to receive approval for sale under the Medical Device Rules 2017.



Export Potential

The projected market size for this technology in India is INR 10 billion yearly. The global circulating tumor cell's market size was valued at USD 3,776.5 million in 2014. (Ref: Grand View Research Report).



Major Achievements (including awards)

Angle Investment raised from US-based investor.

OptraSCAN® -15 :
A Digital Pathology System



Unique Selling Point

- OptraSCAN®-15 (OS-15) is a cloud-enabled 15-slide scanner with 20x & 40x magnification, convenient for bright field application. OS-15 provides the ultimate flexibility for scanning, storing, archiving and managing digital images & metadata. These low and high throughput scanners with small footprint, are lightweight and can easily fit into small workspaces. It is easy to install and comes with a user friendly, intuitive LCD touch screen based on one-Touch walk-away automation.
- OptraSCAN's proprietary software such as IMAGEPath®- Image Management System for viewing, storing and archiving and TELEPath® - Telepathology for real-time, remote consultations are included with OS-15 scanner.
- **Innovativeness:** Various AI & ML based image analysis solutions are offered that can provide rapid, reproducible and accurate analysis of various cancer biomarkers with these Bright field scanners.



Geographical Region Targeted

India: Western, Northern and Southern regions



Cost

INR 25 Lakhs plus taxes.



Sold

2 units



Product Positioning

B2B:

- Pathology labs/ Lab chains
- Local & Multi-specialty hospitals
- Pharma and Drug Research companies and Biotechnology companies
- Research & Educational Institutes
- Contract Research Organizations(CROs)



National/Societal Relevance

- Digital Pathology (DP) is relatively at a nascent stage in India. Many tier II & III cities are yet to accept and adopt DP completely. Mostly microscopes are preferred in many hospitals and labs. The transition from microscopy to digital slides is the need of the hour as DP offers many benefits including: viewing, storing, archiving, real-time sharing and reporting of data etc.
- Secondly, MCI has also made digital scanners compulsory in all medical colleges as a part of their curriculum as they offer an easy shift from static imaging to digitisation. Such scanners can prove to be beneficial in cancer studies and research etc.
- OptraSCAN with affordable scanners is thriving to bridge the above gaps and trying to bring a paradigm shift in digital pathology adoption.



IP Status

NA



Import Substitution

OptraSCAN is an affordable substitution to other similar products offered by MNCs like Philips and Leica which are priced at 5-6 times more.



Export Potential

The Company has a manufacturing facility in Pune, India that can cater to 100% requirements of healthcare organizations spread across different geographies such as Europe, Middle East, Africa, South East, China, Australia and New Zealand.




Major Achievements (including awards)

- Received an approval from the Government of India for mass validation and use of digital pathology system in research and medical settings.
- Nature publication: "An International multicentric study to evaluate reproducibility of automatic scoring methods of assessment of Ki67 in breast cancer".

Osteo3d: Online Platform for Pre-surgical Planning


Affordable, Patient Specific
Fibula Guides
for Maxillofacial Reconstruction






Unique Selling Point

- An online surgical planning platform for Fibula Based Reconstruction for Head & Neck surgeries.
- It facilitate surgeons to plan the reconstruction by uploading the Patient's medical data to the online platform and conduct online virtual planning for the generation of patient specific 3d printed surgical guides for efficient and accurate surgical procedures.
- **Innovativeness:** Affordable & unique nature of the platform.



Geographical Region Targeted

Worldwide



Cost

Available on Request




Sold

50+ live cases




Product Positioning

B2B :Hospitals, head & neck surgeons




National/Societal Relevance

- The Innovation provides a cost effective method for efficient and accurate surgical procedures by means of creation of surgical guides for fibula based reconstruction for head & neck surgeries - especially for cancer patients.
- The simple online solution provides access to surgeons in all parts of the country to adopt the latest technology for accurate surgical outcomes.



IP Status

Design Patents - Applied.




Import Substitution

It is a high quality and affordable solution for indigenous patients.



Export Potential

The innovation has already supplied solutions internationally.



Major Achievements (including awards)

- ISO 13485 certified.
- Tremendous results observed through increased accuracy and efficiency of surgical procedures.

PCR Kits With Internal Control for Shrimp Viruses; WSSV, YHV, TSV and IHNV



Unique Selling Point

- Single tube nested PCR kits for the notorious viruses; WSSV, IHNV, TSV and YHV. All the kits are with internal control:
 - Single tube nested PCR kit for WSSV
 - Single tube nested RT-PCR Kit for TSV
 - Single tube nested RT-PCR Kit for YHV
 - PCR kit for IHNV
- Innovativeness:** The product has internal control.



Geographical Region Targeted

India, South east Asia, Latin America



Cost

INR 58,000/200 tests



Sold

100 units



Product Positioning

B2B



National/Societal Relevance

In India, an estimated revenue loss of Rs. 300 Cr. per annum is incurred because of viral diseases. Controlling diseases is high priority for the shrimp industry. The shrimp industry ranks as the highest foreign exchange earner among our marine product exports. Thus there is great need for indigenously developed kits for these viruses. Also the farmers are aware of the use of PCR techniques for early diagnosis of viruses.



IP Status

2 patents filed



Import Substitution

The kit can replace the best available kit in the market



Export Potential

To all the southeast Asian countries



Major Achievements (including awards)

Best innovator award 2013 from BIRAC.

Percutaneous Transluminal Coronary Angioplasty (PTCA) Balloon Catheters



Unique Selling Point

- PTCA Balloon Catheters have two primary indications: a) Dilatation of lesions before stent implantation & b) Stent Delivery System (transit device for delivering coronary stents)
- It is a device that operates on the principle of hydraulic pressurization applied through an inflatable balloon attached to the distal end. The catheter features a balloon of appropriate compliance for the clinical application, constructed from a polymer. The balloon is designed to uniformly expand to a specified diameter and length at a specific pressure as labeled, with well-characterized rates of inflation and deflation and defined burst pressure.
- The device features a type of radiographic marker to facilitate fluoroscopic visualization of the balloon during use. Rapid Exchange (Rx) PTCA is a double lumen catheter with a tip at its most distal part and the balloon is located proximal to the tip. Expansion of the balloon is done through one lumen. The other lumen facilitates the passage of Guidewire to enable the advancement of the catheter to the lesion. There are two additional Radio-opaque markers located on the shaft at about 90 cm and 100 cm from the tip to further assist in positioning the catheter under fluoroscopy.
- **Innovativeness:** The innovation is best in its kind



Geographical Region Targeted

India, Europe, Asia, and Latin America.



Cost

Available on request



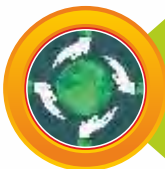
Sold

Over 1 Lakh units



Product Positioning

- PTCA balloon catheters are used as dilatation catheters and as Stent Delivery System (transit device for delivering coronary stents).
- Both Dilatation Catheters and Coronary stent systems are sold directly to Hospitals and Distributors (depending on the business model).



National/Societal Relevance

- NA



IP Status

NA



Import Substitution

Yes, innovation has reduced imports substantially



Export Potential

The product is already being exported to Europe, Asia, and Latin America.



Major Achievements (include awards)

- NA

Platform Technology for Detection of Dengue (Dengsure1-4)TM



Unique Selling Point

- S.L.S has developed expertise on Point-of-care technologies (POCT) LAMP based panels/kits for screening infectious diseases in resource limited settings Some of the POCT NAAT based kits developed by S.L.S include test for Species specific Dengue, Malaria, T.B, HIV, etc.
- Innovativeness:**
 - Rapid diagnostic kits use only one antigen and hence able to detect only NS1 antigen. The severe forms of Dengue are caused by serotype 2 and 3. The LAMP based assay provides results for all antigens.
 - The test is affordable. The technology can detect as few as 10 copies. Also because of six sets of primers used, the specificity is enhanced immensely.
 - The test can be taken to the bedside or to fields; hence it is more easily accessible compared to the high end tests which require high end instruments available only in hospitals.



Geographical Region Targeted

Currently India, later surrounding countries



Cost

INR 1600/(400 per test/antigen)



Sold

305 tests (at INR 1600 each test)



Product Positioning

Govts, individuals, clinics, hospitals



National/Societal Relevance

- Dengue is undoubtedly one of the biggest health concerns in India. NVBDCP data reveals that over one lakh people were diagnosed and an estimated 172 died from dengue in 2018. LAMP has to substitute PCR-based methods because of its simplicity, rapidity, specificity, sensitivity and cost-effectiveness, and no requirement of special equipment. Reactions can be visualised by monitoring either the turbidity in a photometer or the fluorescence in a fluorimeter, by visual inspection under UV lamp when using an intercalating dye or by colour change.
- Dengsure 1-4, is a NAAT based POC (Point of Care) panel that simultaneously evaluates the four distinct species of Dengue virus. Detection can be completed in less than one hour (Compared to 48 h, Current Norm). Technology is being offered as service launched in Jan'2018.



IP Status

NA



Import Substitution

The innovation offers substitution of the imported RT-PCR tests kits: Real star dengue RT-PCR test and TruPCR and other tests which are carried out in India like 1). Oscar medicare Dengue combo rapid test, 2). Bharat Bioscan Dengue(NS1.IgM.IgG), and 3). SD bioline, NS1 kit.



Export Potential

The innovation has good export potential due to the huge demand worldwide.



Major Achievements (including awards)

XLR8 Tirupathi programme, Top Innovator Award, 2017.

Portable Compact Mobile Lab (PCML) and La-bike



Unique Selling Point

- PCML is a clinical laboratory with an open system in a suitcase having power back- up of 4 hours extendable up to 24 hours. It can easily work in the temperature from (0-50) degree C and total 36 tests can be performed on haematology and biochemistry including: KFT, LFT, lipid profile, electrolytes, sugar etc. Low power consumption and lower blood collection cost makes the product cost effective. In addition, satellite control, Bluetooth and GPRS tracking, enable easy monitoring of the devices.
- "La-bike" is a diagnostic carrier where a whole lab setup is established on a bike.
- Innovativeness:** As compared to conventional lab Mobile Lab is very rugged and maintenance free as all the lab components including lab equipment have their predefined place which further reduces the infrastructure requirement.

Geographical Region Targeted

Across the globe

Cost

- La-bike with bike:** Full Capex cost including GST: INR 6.95 Lakhs
* Revenue sharing model (*Less capex and Opex combination are available*)
- Mobile lab:** Full Capex cost including GST: INR 4.36 Lakhs
* Revenue sharing model (*Less capex and Opex combination are available*)

Sold

> 1500 units

Product Positioning

- Primary and Community Health Centers, Mobile Clinics/Mobile Medical Unit and Medical Camps. Also Laboratory set up in miniature space – Doctors, Clinic, ICUs
- State Govt. of Manipur has already introduced 85 La-bikes.
- Vietnam and Nepal have also taken a lead in implementation of these innovations.

National/Societal Relevance

Primary health care is at the heart of Universal Health Coverage (UHC). UHC, in turn, is critical to achieve the sustainable development goals. Access to essential tests is the key step in improving quality of care. Accuster Technologies Pvt. Ltd., (affiliated by DSIR) after thorough research on problems faced by diagnostics fraternity in India, has innovated the Portable Compact Mobile Lab which can serve 78% population of our country not having access to quality diagnostics

IP Status

Design registered: 230083

Import Substitution

No direct competitors available in the market.

Export Potential

Owing to compactness, it can be used in other low and middle-income countries (LMIC) where there is a need for cost-effective diagnostic solution with advanced monitoring features. Its easy mobility can increase accessibility and it can be use as advance POCT for any geographical region irrespective of climate.

Major Achievements (including awards)

- Launched by the President of India Mr. Pranav Mukherjee on the occasion of Technology day, 2013.
- Part of business delegation of Prime Minister to African countries.
- Indian Army's flagship Product.
- It's in process of recommendation to the UN mission.
- Central govt. already recommended PCML under the diagnostic scheme and state govt. of Rajasthan has already implemented it.

Prizm⁺ Pocket Spectrometer



Unique Selling Point

- TestRight has developed patented Pocket sized spectrometer (200-1100nm) which uses the company's novel plastic diffraction gratings and CCD Diode Array.
- **Innovativeness:** It is the first company to develop and implement plastic diffraction grating technology which increases the signal to noise ratio and increases the optical efficiency, all at a better price. Thus, the system is more robust, compact and cost-effective.



Geographical Region Targeted

India, South East Asia, and Africa



Cost

IPrizm⁺ = INR 50,000, 20units
Prizm UV = INR 1.7 lakhs, 4 units



Sold
20 Units



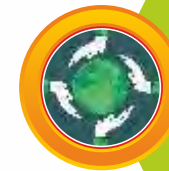
Product Positioning

Pharma Companies, Institutions (for teaching purpose), and Pathology labs



National/Societal Relevance

The product has diverse applications from diagnostics to food adulteration testing. Also, the device can be connected to any computer or smartphone over a USB cable and the custom-built software or app can be used as an interface to show the spectra or control the spectrometer. The company is also actively involved with the customers across various industries to automate their process - from beverages to ink industries.



IP Status

Patent Granted: 201611033997
Patents Filed: 307821,307823,307824



Import Substitution

Test Right's indigenous innovation has substituted Ocean Optics spectrometer which was being imported by DRDO and other organization.



Export Potential

The product has already been exported to Israel, France, USA and South Korea. The products being used in water testing, teaching and diagnostics applications worldwide.



Major Achievements (including awards)

- Represented India at Get in the Ring- Berlin in June'19.
- 1st Prize Patna Ideathon '18 by Bihar Govt.
- 1st Prize International Knowledge Millennium Conference'18.
- BioAsia'18 Winners.



ReMeDi NOVA™ Digital Health Solution



Unique Selling Point

- ReMeDi NOVA™ Digital Health Solution is an indigenously developed, designed specially to bring healthcare access at the doorsteps of the villagers. Using the Cloud Technology, 35 POC diagnostics & Smartphones.
- The innovation requires minimum infrastructure to operate and can conduct more than 35 POC diagnostic tests (3.5kg suitcase) on mobile and portable platforms with AI-based tools.
- Innovativeness:** Highly portable and brings together multiple POC tests at the patient's doorstep, Tele-consultation can happen at as low as 64 kbps bandwidth, Level of integration with the devices is very high, resulting in the medical data directly entering the EMR.



Geographical Region Targeted

India, Sub-Saharan Africa, South & South-east Asia



Cost

INR 2.5-3 Lakhs
(The cost is divided in the following parts –1) Sale (and AMC) for the medical devices 2) Pay-per-use for the software (SaaS) in usage slabs and 3) Consumables for various diagnostic tests on a need basis 4) There are other components like training, installation, etc. that are provided and charged for on a need basis).



Sold
>100 units



Product Positioning

- Government Public Health Network, where the health workers provide healthcare services to the villagers or small towns through sub-centers, PHCs, etc.
- Private Sector Hospitals providing Home Healthcare services through Paramedics, or post-operative services or provide outreach services like health. Several NGOs and Mission hospitals



National/Societal Relevance

- India struggles with the challenge of both heavy disease burden. Poor Access to basic healthcare is a major cause of OOP expenditures. According to the Health policy Plan, 2009 about 32-39 million households fall below poverty line every year. They also have a completely fragmented delivery ecosystem, missing Pharmacy, Diagnostics, Qualified providers, financing and insurance mechanisms, referrals, and awareness.



IP Status

- Patents Granted:
1) 229543 and 2) 1178/CHE/2008
- Patents under review:
1) 2486/CHE/2007 and 2)3345/CHE/2011



Import Substitution

India was importing a lot of physiology devices like BP monitors, ECG monitors, Pulse Oximeters, etc from other countries, with the in-house development and manufacturing of these POC devices in India there is an increase in the substitution of imports due to the domestic production of these devices.



Export Potential

There is a substantial international potential market for this innovation in the regions that have poor healthcare infrastructure, difficult to access terrain, shortage of medical professionals, and weak healthcare financing systems, like Sub-Saharan Africa, South & South-east Asia.



Major Achievements (include awards)

- Ashoka Fellow AWARDEE (Mr. Sameer Sawarkar Founder and CEO).
- Millennium Alliance Award 2016.
- ASME Innovation Showcase 2015.
- NASSCOM Social Innovation honor's 2014 as Jury's Special Choice Award.
- Finalist at Inclusive Innovation Honour's in 2013 by Indian Merchants Chamber.
- Grand Challenges Canada has awarded support to Neurosynaptic as Stars in Global Health, for development of indigenous technologies.

Saans: Neonatal Continuous Positive Airway Pressure (CPAP) Support



Unique Selling Point

- It is a portable, easy to use, robust, neonatal CPAP device to provide breathing support for infants suffering from Respiratory Distress Syndrome (RDS) in both hospital and transport settings. Saans is the world's first CPAP device to have a manual powering option and is designed to work during transport, as well as secondary care settings. Saans offers breathing support to neonates before and during transport to a NICU for longer-term care and will help address over 150,000 RDS-related deaths each year in India.
- **Innovativeness:** As compared to current CPAP devices, Saans can be used during transportation or in low-resource (PHC, CHC, maternity home) settings.



Geographical Region Targeted

Emerging markets



Cost

Available on Request



Sold

20 units



Product Positioning

Private and Public sector hospitals with maternity facilities.



National/Societal Relevance

Respiratory Distress syndrome (RDS) is a breathing disorder in premature babies caused by the immature development of lungs. In India, RDS is a significant cause of neonatal mortality, causing over 150,000 deaths annually. It is estimated that one-third of these deaths occur during transportation of the neonate to the NICU. Long distances between the rural hospitals where these babies are born and the neonatal ICU where CPAP (or ventilation) is administered, and limited transport infrastructure, results in most babies not receiving CPAP therapy during transport. Current CPAP devices are designed for the NICU, are very expensive, require skilled manpower and good infrastructure and are not available for transport or secondary care settings.



IP Status

Design Patent granted: India 288957
PCT applied: WO2018134849A1



Import Substitution

Saans has the potential to partially replace the use of Bubble CPAPs (imported currently) in certain hospitals.



Export Potential

The product has significant potential for export. The healthcare systems in countries in Africa, South-East Asia and South America would have a need for the product.



Major Achievements (including awards)

- Completed 250-patient field trials with excellent results.
- Completed 68 patient two-arm trial comparing Saans with oxygen therapy for intra-hospital transfer (publication pending).
- 20+ Hospital demos completed.
- Winner of multiple awards in India and abroad.
- Selected by Gates Foundation for inclusion in their Every Woman Every Child medical device portfolio.

SeeTB: Portable Microscopy Module for TB diagnosis



Unique Selling Point

- VPH is trying to address the problem of Tuberculosis (TB) diagnosis in India with point of care diagnostic device called "SeeTB". The most widely used screening method for TB diagnosis in India is sputum smear microscopy using bright-field microscopes. With SeeTB, the company would like to upgrade the existing bright field microscopes for highly sensitive fluorescence based TB diagnosis system.
- **Innovativeness:** SeeTB utilizes the company's two novel technologies-
 - cTIRF: cTIRF (compact Total Internal Reflection Fluorescence) excitation device, a novel patented planar waveguide-based illumination technology developed by VPH. cTIRF can be used with bright-field microscope to convert it to fluorescence microscope, without expensive instrumentation modifications to the existing microscopy setup. Evanescent wave-based illumination enhances the z-resolution in fluorescence imaging and reduces the background noise.
 - Sputum thinning reagent (SLR): Sputum processing reagent is a novel method for sputum thinning. Non-specific labeling of debris in sputum leads to poor sensitivity and specificity. Sputum digestion with clearing reagent removes debris and frees the bacilli present in sputum for fluorescent labeling.



Geographical Region Targeted

Indian subcontinent, Eastern Europe, China, and Africa



Cost

1500-2000 USD (tentative)



Sold

Pre-orders:5



Product Positioning

The products are used mainly at the designated microscopy centers and RNTCP centers; hence the main users will be lab technicians at the diagnostic labs and hospitals.



National/Societal Relevance

India has the highest burden of TB in the world. Although the Indian government has chalked out an ambitious plan to eliminate TB by 2025, it is able to screen only 63% of TB patients through sputum smear microscopy. A person infected with TB, if left undiagnosed, can infect on an average 10-15 healthy individuals in a single year. The existing method (ZN-staining for TB diagnosis) has low sensitivity and misses out over 30-40% of TB cases. As a result, only 63% of TB patients are correctly diagnosed in India. Efficient screening method such as SeeTB can help to break the cycle of TB infection by high sensitive screening of every TB patient at the designated microscopy centers.



IP Status

Patent Filed: 2673/DEL/2015



Import Substitution

The device can be used in place of expensive fluorescence microscopes for TB diagnosis. These microscopes cost upwards of USD 4000 whereas the present innovation is a fraction of this cost. Most of the components for the device are also manufactured in India.



Export Potential

The device can be exported to other high TB burden 22 countries outside India. Apart from TB diagnostics, the device has received interest from institutions in Europe for other life science and microscopy applications.



Major Achievements (including awards)

- Grand Challenges Explorations India Round 3 2018 Winner (BIRAC | IKP | Bill and Melinda Gates Foundation).
- Gandhian Young Technological Innovation (GYTI) Award 2018 (Hon'ble President of India).
- Winner- Social Alpha Quest for Health Innovation (Social Alpha and Tata Trusts-PATH Impact Lab).

Small-Molecule Target Identification Technology



Unique Selling Point

- Bioactive small-molecule screened through phenotypic set-up face a hurdle in their development as a potential drug because their protein targets and action mechanism are not known. Our technology platform allows identification of true-positives targets of bioactive small-molecules.
- Innovativeness:** Rate of false positive target identification is significantly low and the platform saves upto 50% time in target prioritization.



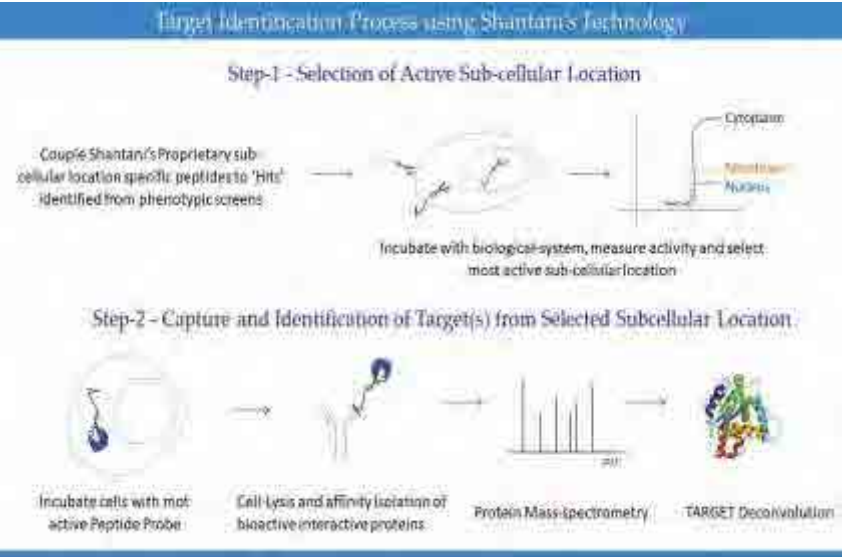
Product Positioning

B2B service offering: Customers are mid-size to large drug discovery companies.



Import Substitution

NA



Geographical Region Targeted

International (USA and Europe)



National/Societal Relevance

Significant biodiversity of India presents an opportunity of isolation and identification of bioactives that can be used as building blocks of new drugs. Our technology, by identifying the protein targets and action mechanism of bioactives, can play a significant role in developing a drug discovery pipeline from India



Export Potential

Majority of technology clients are outside of India.



Cost

~55000 USD



IP Status

Proprietary know-how. Not protected through traditional IP routes.



Major Achievements (including awards)

Company has reached at operations profitability.



Sold

Not Applicable. Technologies are utilized as integral part of the discovery workflow of client.

Smart Scope®: Screening of Cervical and Oral Pre-cancer



Unique Selling Point

- The Smart Scope® is a hand-held trans-vaginal digital imaging device that comes with a tablet-based telemedicine system with Artificial Intelligence-enabled image assessment for classification of abnormalities in a body cavity so that a trained health-worker can provide test results in a single visit.
- Innovativeness:** It is an expert free and electricity-independent device that can be carried around for multi-facility (camp etc.) usage. The AI algorithms used for automatic assessment supported by a telemedicine platform facilitate in further referrals and follow-up protocol. Disposables required for testing in a 10-Test kit are also provided.

Geographical Region Targeted

India, South-east Asia, Africa, Middle East and Latin America

Cost

- Device CX 2.0: INR 3.5 Lakhs
- 10-test kit of disposables: INR 1,500

Sold

45 Units

Product Positioning

- Public and Private Health Sectors:
- Civil Hospitals, PHCs, RHCs, Municipal Hospitals and Dispensaries, ESIC Hospitals, AFMC and Command Hospitals, Railways Hospitals, Govt. Medical Colleges, Polyclinics, Gynac Clinics, Mobile Vans and NGOs

National/Societal Relevance

- 300K women die worldwide every year due to cervical cancer. Majority of these deaths occur in low resource countries. The primary reason behind is the lack of expert cytopathologists and equipment at primary healthcare levels which is necessary for screening programs.
- The two exams proposed by WHO; Visual Inspection with Acetic Acid (VIA) and Visual Inspection with Lugol's Iodine (VILI) provide incorrect result in cases where these are performed by inexperienced examiners leading to either overtreatment or missed cases. Additionally, positive suspect patients are further sent to tertiary healthcare centers for diagnostic confirmation and/or treatment.
- Hence there is a clear need for a solution that would provide affordable, objective, and single-visit screening result to the patient with a facility to do expert referrals and follow-ups.

IP Status

- Patent Granted: 306059,
- Patent applied: 201823028816,
- 2 PCTs filed: PCT/IB2017/057562, PCT/IB2018/057428

Export Potential

\$ 100M with current product.

Import Substitution

It is a substitution for Digital colposcope (Borze, Olympus), HPV DNA Test.

Major Achievements (including awards)

- BIRAC SPARSH and IIPME Grant Winner.
- TiE Most Promising Healthcare Startup Award (2017).
- TISS iPreneur Runner-up (2017).
- empoWer Accelerator Winner (2017).
- Capital First CSR Grant Winner (2017).
- XLr8AP Accelerator Winner (2018).
- iPitch National Award Winner (2018).
- HDFC Parivartan Grant Winner (2018).
- Social Alpha Health Quest Grant Winner 2018.
- ISO13485:2016 Certification in 2018.

SOHUM: Screening Newborns For Hearing Loss In Resource-Poor Settings



Unique Selling Point

- The Lab has developed an innovative technology platform to screen newborns for hearing loss using Auditory Brainstem Response (ABR) technology.
- Innovativeness: **1) Easy to use hardware interface:** Hardware is compact, battery operated and simple to use. **2) Accurate Algorithm:** It is adaptive and learns with screened data to provide high sensitivity and specificity, **3) Automated Results:** It detects the presence or absence of the standard pattern/characteristics of brainstem response. The algorithm is independently capable of decision making as PASS, REFER & REDO, **4) Re-verification & Annotation:** The device uploads EEG data on the server using a low bandwidth internet.



Geographical Region Targeted

Phase I: Currently, Tanzania and Uganda. Later in South Asia and east Asia

Phase II: Bangladesh, Nepal, Sri Lanka, Bhutan, and one country in Latin America, Peru.

Phase III and Phase IV: Five countries in South Asia— Malaysia, Thailand, Vietnam, Singapore, Philippines and rest of the world market.



Cost

- Selling the device: There are three versions with the price range from INR 2.5L to 5.6L which is one-third of the imported device cost.
- For Leasing the device/year engagement: Customers are ENT clinics and local entrepreneurs.
- Newborn hearing screening services to maternity homes on a revenue-sharing per-test basis. Customers are corporate and mid-level hospitals for these services.



Sold
55



Product Positioning

- Programs have been established with NHM Tripura (8 devices) and NHM Himachal Pradesh (10 devices). Same has also been started in Bangalore, Bhopal, Chennai, Pune & Mumbai. The device is currently used by Narayana Nethralaya, Manipal hospitals, Rainbow hospital.
- Installed 4 devices in Tanzania & 2 devices in Uganda. Diploma audiologists & local entrepreneurs are engaged to use the device in maternity and NICUs



National/Societal Relevance

- Saving babies from lifelong disability: The Company aims to reach a huge number of babies and eradicate late detection of hearing loss and speech loss.
- Collaborating with Government programs: The government has a National Programme for Prevention and Control of Deafness in several districts across India and also State government has special focus on decreasing neonatal mortality and morbidity through Sishu Suraksha Yojana. The government is already focusing on mandatory vaccinations & thus Hearing screening services can be coupled with these vaccination programs. The innovation is designed to be used by ASHA, Anganwadi workers.



IP Status

- 1 PCT filed along with the DBT, Gol: PCT-IB2013-054624



Import Substitution

Currently, the imported devices are prohibitive in cost (\$12000- \$24000), and require expensive disposables. Sohumi would help in saving cost to the system and also the recurring requirement of calibration, services will be taken care in India in less time.



Export Potential

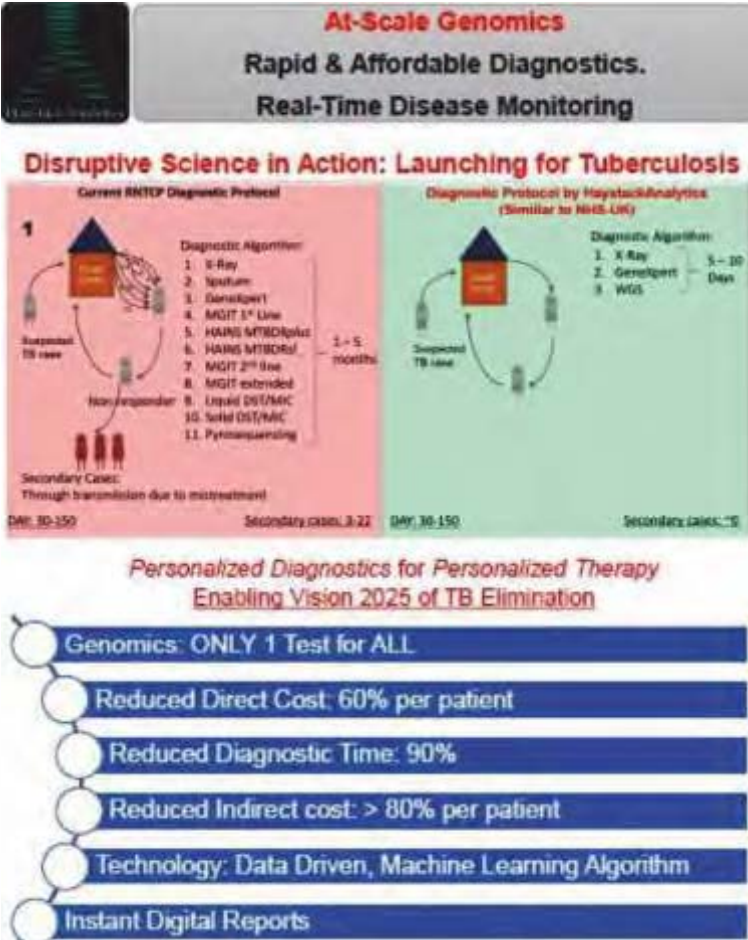
800,000 hearing impaired babies are born every year all over the world, of which 90% are born in developing countries, and among these 100,000 babies are born in India alone. There is an unmet clinical need to screen 26 million babies born in India, every year for hearing loss. Sohumi reaches out to both institutional and non-institutional births, by involving the right stakeholders including maternity hospitals, NICUs, pediatric clinics, government hospitals & non-profit organizations.



Major Achievements (including awards)

- President National Award for Indigenous Product Commercialization.
- Grand Challenges Canada, Star in Global Health Award.
- WHO top 50 technologies for low resource settings.
- Nasscom ICT led Innovation Award in Healthcare.
- MIT Tech Review TR 35.
- IMC Social Inclusion Award & Rolex Award for Enterprise.
- Robert Howard Award for Health Technologies, LUNAR.
- Investment and grants raised: ~ Rs 6 crores.

Solution for At-Scale Genomics for Diagnostics and Real-Time Mapping of Infectious Disease



Unique Selling Point

- The company provides genomic diagnostic for drug susceptibility testing of tuberculosis, which is essential for early and correct personalised treatment. The genomic analytical platform can be rapidly expanded to all future drugs and other infectious diseases, which is essential for controlling Antimicrobial Resistance.
- Innovativeness:** Product has the potential to replace more than 100 current legacy technologies.



Geographical Region Targeted

PAN India



Cost

Available on request



Sold

100 tests



Product Positioning

B2G



National/Societal Relevance

There a 2 deaths every 3 minutes due to tuberculosis (TB) in India. Despite having >10 antibiotics for treating TB, there has been a rapid increase in number of TB cases due to severe drug resistance. It is now essential to perform whole genome sequencing, which is the only technology available for providing comprehensive drug resistance testing within 7 days. Using this, the government TB programme can provide personalised diagnostics, which is essential for achieving the TB elimination target by 2025.



IP Status

None. All the knowledge is available through open source



Import Substitution

NA



Export Potential

Test can be made available to other countries with a high load of drug resistant TB, such as sub-Saharan Africa and South-East Asia.



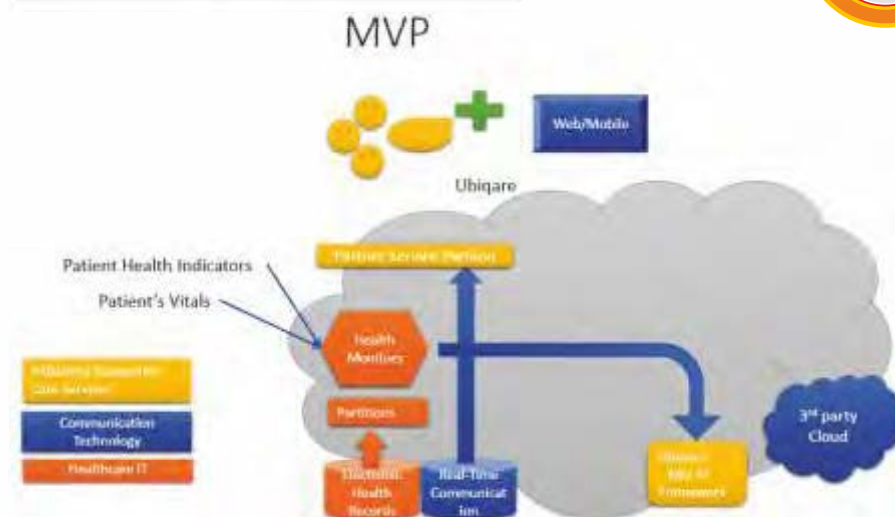
Major Achievements (including awards)

- Winner Maharashtra Startup Week.
- NASSCOM Most innovative Startup 2019.
- Performed the first ever genomic based diagnostics for public health system in India.

Specialty Medical Supportive/Palliative Care to Patients at Home.

Technology/ Architecture

- Cloud-based telehealth direct to Home
- Data, A/V Communication
- User Experience - Mobile and web Apps
- EHR stack – single-tenancy with partitions



Unique Selling Point

- The innovation aims to build a pervasive specialty follow-up care; virtual hospital with beds at home. The innovation connects patients to the specialists/hospitals, by means of clinical tele-presence technology. It is a collaborative care delivery model and a last-mile network of skilled nursing and doctor partners to provide the physical touch of care.
- **Innovativeness:** As compared to other, the present innovation provides an extension of care from the specialist to home, rather than transition to new care regime. Further in comparison to the available nursing-driven care the Company offers doctor-driven care which ensures compliance to the specialists' care protocol, and access to the doctor at all times. The Company uses technology and clinical networks to provide early interventions to manage episodes and prevent re-admissions. This will further generate their on-demand interventions at home.

Geographical Region Targeted

Currently, Bangalore, later other regions within India.

Cost

INR 15000-20000/month (*Subscription based model*).

Sold

Served 84 Patients over the last 1 year.

Product Positioning

Patients in need of supportive/ follow up care.

National/Societal Relevance

Millions of patients with chronic diseases are unable to receive specialists' access and care at home. These patients try to recuperate at home, however sometimes suffer about 4/5 episodes of uncontrollable side-effects every month which leads to their re-admissions to hospitals. Ubiqare solution enables: a) continuity of care from the same trusted specialist, b) supportive medical care from doctors familiar with their condition and c) medically supervised timely clinical interventions at home for medical episodes. This helps to propagate supportive and palliative care across the country benefitting people far from tertiary hospitals, and making quality healthcare more accessible and affordable to people.

IP Status

NA

Import Substitution

NA

Export Potential

The Future planned Clinical Telepresence Technology Upgrade has potential for exports.

Major Achievements (including awards)

- MOU with a Cancer Hospital.
- 84 Patients Served so far with renewals more than 73%.

Stress Response Measurement System (STREME)



Unique Selling Point

- Physiological measurement of Chronic Stress in an individual for Psychologists, Psychiatrist and OSHA professionals.
- Innovativeness:** Current method of using Psychometric tools is subjective, and repeatability is not accurate. Additionally, Serum Cortisol measurement in the blood is another indicator of stress but is not comfortable and is also prone to diurnal factors. However, STREME offers a way to measure stress objectively through non-invasive method.



Geographical Region Targeted

Phase 1: India
Phase2: Developed countries



Cost

- Device: INR 1 Lakh
- INR 200/reporting in the pay per use model.



Sold

Pre-orders: 5



Product Positioning

Practicing psychologists, psychiatrists and Occupational Safety and Health Administration (OSHA) professionals.



National/Societal Relevance

Stress is primary cause of lifestyle diseases and the periodic measurement of stress in a person can lead to early intervention for stress relieving and thus avoiding lifestyle diseases. Indian workforce is increasingly becoming stressed and is facing burnout and early detection of stress can avoid such breakdowns. With nearly 170 million in organized workforce and an equal number in the un-organized sector, this instrument will be a big advantage for specialists to measure stress and plan for right intervention.



IP Status

In process of filling patent application.



Import Substitution

No equivalent product is available in the market.



Export Potential

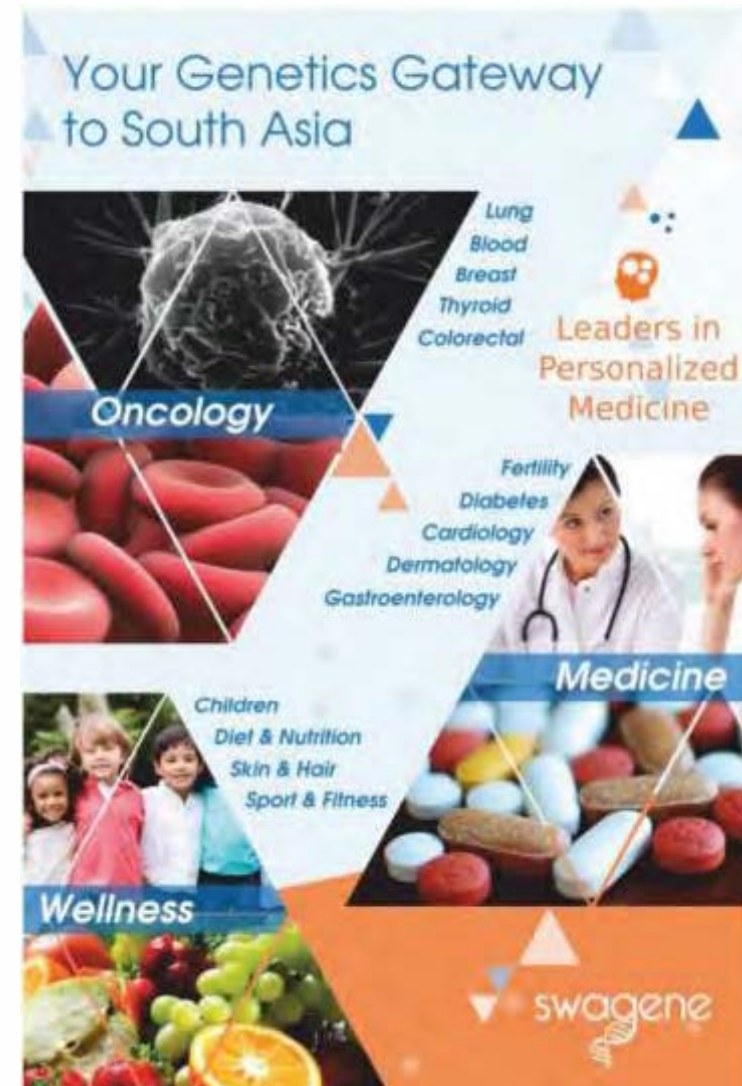
In the global scenario, there is still no device available for objective measurement of stress and the innovation has a huge potential especially in developed markets where workforce is highly stressed and early detection of stress or stress build up will help the individuals immensely.



Major Achievements (including awards)

- Received Seed grant of INR 8.0 Lakh from IIT Madras Incubation Cell.
- Finalist in Israeli Mass-Challenge.

Swagene: Molecular Diagnostics Tools for Personalized Therapy



Unique Selling Point

- Swagene makes advanced personalized medicine available, accessible and affordable for diseases including infections, cancer, pregnancy, infertility, heart disease and others, which are being used by top specialists in India.
- The molecular diagnostic tests have the best turnaround times. The Company is looking to automate these innovations that would further decrease the cost and time.
- Innovativeness: a) Lowest prices for molecular kits and reagents, b) Globally fastest turnaround times c) Automation of PCR data analysis and clinical reporting from PCR data, d) Widest portfolio of personalized medicine

Geographical Region Targeted

India, countries in the Middle East, Africa and Asian countries.

Cost

Test Cost: INR 2300-14,000.

Sold

Tests: ~ 5000 till date

Product Positioning

- Scope: Franchise operations, set up molecular labs according to partner requirements; sale of tests, kits and reagents.
- Offer testing services to: hospitals, institutions, laboratories, academia and research centers, CRO, health and fitness centres and individuals.
- Sale of reagents and kits to hospitals, laboratories, institutions, academia and research organisations and business partners for marketing and sales.

National/Societal Relevance

Rapid diagnosis along with high sensitivity and accuracy ensures that the patient gets the right treatment within hours at affordable price. Swagene is the first and only super-specialty molecular diagnostic laboratory in the country that is focused on Precision medicine and personalized therapy.

IP Status

NA

Import Substitution

All the kits and reagents are direct substitution for much more expensive kits which are imported from countries like Germany, USA etc.

Export Potential

The Company has exported the molecular tests to customers in countries such as Israel, Poland, Malaysia, Indonesia, Sri Lanka, Bangladesh etc. They have also served customers from Africa and Middle-East as medical tourists. There have been enquiries for the kits and reagents and lab Franchise from Turkey, Indonesia and Malaysia and other East Asian Countries.

Major Achievements (including awards)

- FICCI DST-Lockheed Martin Gold Medal for Innovation.
 - CII Startup of the Year, healthcare.
 - NASSCOM 10K Startup.
 - IIT Kharagpur: Most Innovative Startup, Empresario.
 - IIM Ahmedabad: Masterplan Winner.
 - BITS Pilani: Conquest Winner.
- A DSIR-certified R&D lab & DIPP-certified innovative startup.

SYNC: Blood Glucose Glucometer



Unique Selling Point

- A Smart & All-in-one compact sized Glucometer designed for personal use.
- It is an integrated glucometer including all the components required for testing Blood Glucose. The strips used with the meter designed on a proprietary electrochemical platform are most affordable and gives result in 5 seconds.
- Less than a microliter of capillary blood is used for the test, the SYNC meter ensures that the results are compliant with ISO15197:2013 (Global guideline for Glucometer Accuracy).
- The Bluetooth connectivity built into the meter enables real time tagging of results on a smartphone with the SYNC app with trends and analytics of data accumulated over time.
- **Innovativeness:** It works on the electrochemical principle, precisely amperometry unlike others where glucometers where measurement is done by photometry.



Geographical Region Targeted

PAN India, mainly Southern (Karnataka, Kerala, Tamil Nadu) and Western (Maharashtra, Gujarat) regions.



Cost

- INR 600
- Strip – INR 5



Sold

1 lakh



Product Positioning

Diabetic patients, Clinics, Hospitals and Pharma companies dealing in diabetic segment.



National/Societal Relevance

- Glucose meters are universally utilized in the management of hypoglycemic and hyperglycemic disorders in a variety of healthcare settings. These can be widely used in hospitals, outpatient clinics, emergency rooms, ambulatory medical care and home self-monitoring. Glucose meters provide fast analysis of blood glucose levels and are also used for insulin dosing changes which is derived by daily tracking of blood sugar making it more objective and safe.
- SYNC glucometers are Bluetooth enabled and can be personalised with SYNC app (available on Playstore) which can be used to monitor trend of blood sugar values.



IP Status

Not yet



Import Substitution

NA



Export Potential

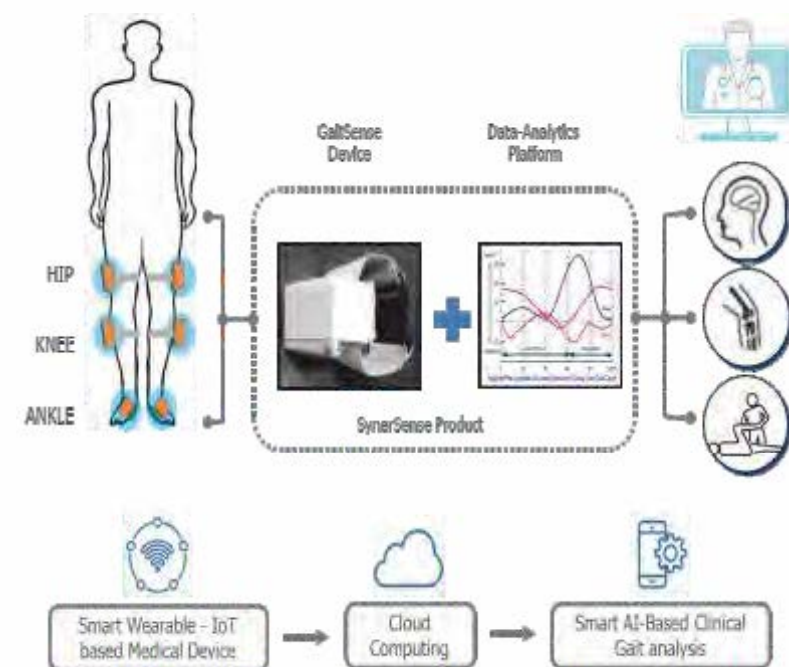
It is first make in India blood glucose monitoring device and has a great export potential.



Major Achievements (including awards)

Recognised by ICMR & has been approved by National Institute of Biologicals, India.

SynerSense



Unique Selling Point

- SynerSense, a novel and innovative state-of-art technology company developed world's first wearable IoT devices for multi-modality therapy for chronic orthopedic and neuro-logical disorders. These devices enable the doctors to study and make clinical decisions faster and accurate to provide effective treatment. Further, through machine learning data analytics platform, a risk of injuries can be predicted and minimized for patients at an affordable cost in any healthcare settings.
- Innovativeness:** The innovation has several key features; a) saves time 7x, b) reduce cost 10x, c) accuracy over 95% - as per the industry gold-standards and scientifically validated data in clinical pilot trials, d) improved performance of treatment-50-70% for patients, e) Device measures-30-40 key gait parameters - unlike existing competitors.

Geographical Region Targeted

India, USA, Canada, UK, Australia, and Europe

Cost

- INR 5 lakh/ unit.
- INR 1Lakh/unit for additional module.
- Software Subscriptions (SaaS Model) - 50% /Patient test Report.

Sold

3 units, Pre-order:1

Product Positioning

- B2B: Hospitals, physiotherapy centres, clinics and diagnostics centres, super-specialist hospital: neurologist, orthopaedics and physical medicine and Rehabilitation centres.
- Aims to develop a partnership with medical and biomechanics research institutes and sports training centres.
- The product has already been sold to Stroke-Rehabilitation Research Lab, IIT - Gandhinagar, Gujarat and to Early Adopter Labs.
- Pre-order has been received from Physically Disabled Assistive Research lab, IIT Madras, Chennai.

National/Societal Relevance

In India, about 80 million people are living with orthopedic and neurological disorders. 4 million people are becoming disabled annually. Also, with age people have problems related to Parkinson's disorder and posture and walking movements. Thus, it is the need of the hour for every patient to have a Pre- and post-operative gait analysis to avoid further risk of injuries.

IP Status

2 IPs are filed

Import Substitution

A Make In India product targeting for Global Health needs.

Export Potential

Through export potential the product will have:

- An opportunity to capture untapped Market in Rehabilitation and Sport Health Segment.
- Able to achieve Global Market share with an affordable and efficient product in Developed Countries

Major Achievements (including awards)

- BIG grant from BIRAC, 2019.
- NIDHI-PRAYAS Grant Support from DST, Gol, 2019.
- TiE-BIRAC Winner Award for women in Entrepreneurial Research from DBT, Gol, 2019.
- Leaders in Innovation Fellows (LiF) program, Royal Academy of Engineering (RAE), Newton Fund from Govt. of UK. 2019.
- 5th Cohort pre-incubation under IC² Institute, The University of Texas at Austin and Nexus Startup Hub at American Center, U.S. Embassy, New Delhi, 2018.
- Investment raised: 0.92 Cr INR.

Synthesis Platform for Recombinant Proteins and Antibodies



Unique Selling Point

- GeNext Genomics Pvt. Ltd. (GNG) developed a recombinant protein and antibody production platform. GNG is a pioneer in production of recombinant proteins as domains, truncated and full proteins for research and development purposes. With its current launch, GNG has developed catalogue proteins and antibody to be used for diagnostic purposes in Human and Animal Health sector. The Antibody development platform is delivering various novel targets for therapeutic evaluation.
- Innovativeness:** Currently GNG is focussing on development on PENSIDE test for "DO IT YOURSELF". This would not require specialized manpower and can be used in the field.

Geographical Region Targeted

Currently PAN India, later CHINA, IRAN, South Africa and Europe.

Cost
INR 200/Unit

Sold
Phase 1 Units

Product Positioning

- Direct sales (B2C): a highly motivated and skilled sales team will be put together to sell directly to the end-users
- Wholesale distributors: GNG will follow a selective distribution, where GNG will identify a select few distributors to distribute GNG products.

National/Societal Relevance

The Company has developed various proteins and antibody, which are currently being imported for clinical testing of cancer patients, thus bringing down the cost of diagnosis for oncology and other diseases. GNG is also developing diagnostic tests for disease which is crossing from Animal to Human and vice versa. They will be releasing diagnostic kit for diseases like Brucella and Tuberculosis in cattle as well as humans, Theileriosis in cattle and Classical Swine Fever in pigs. These diseases cross barriers and cause illness in Farmers handling the livestock. Apart from direct loss of almost 4000 Cr, there is lot of indirect losses to the country.

IP Status

- 2 Patents granted: 201721024980 and 201721042526
- Patent Filed: 201921023253

Import Substitution

Currently 90% of these kits and antibody reagents are imported in India which is worth \$500 Million. The Indigenous product would replace the imports.

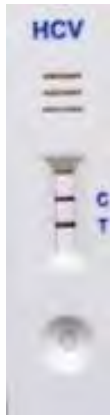
Export Potential

Very High

Major Achievements (including awards)

- BIG-BIRAC grant .
- BIRAC-PACE grant.
- BIRAC-NBM grant.

Syphilis and HCV Antibody Detection Rapid Tests



Unique Selling Point

- Recombinant antigens specific to *Treponema pallidum* (spirochaete bacterium causing the diseases syphilis) and Hepatitis C virus have been developed and commercialized.
- These antigens are used in the manufacturing of Syphilis and HCV antibody detection rapid tests.
- **Innovativeness:** It is cost effective and takes less time since the indigenously developed antigens directly conjugate with gold nano-particles during rapid test manufacturing process. While other methods available requires an additional coupling/intermediary reagent (non-specific agent) for the conjugation purpose.



Geographical Region Targeted
PAN India



Cost

- Syphilis test: INR 6
- HCV test: INR 15
(for bulk orders)



Sold
>4 million



Product Positioning

B2B: Diagnostic distributors.



National/Societal Relevance

- Nationally first time the entire required recombinant antigens specific to *Treponema pallidum* and HCV have been developed and successfully installed for in vitro diagnostic purposes.
- This not only saves foreign exchange by substitution of imported antigens by in-house ones, but also strengthened the supply-chain, better control over quality, creation of employment in the biotechnology lab, reduction in rapid test price from the innovator's end, etc.



IP Status

NA



Import Substitution

Substituted the import of *Treponema pallidum* and HCV antigens.



Export Potential

Products have export potential.



Major Achievements (including awards)

Tremendous results in terms of quality of the tests have been received.

The Rhino Digester System



Unique Selling Point

- A waste processing machine and service that is suitable for individual urban homes and organizations. The users enjoy a sanitary method for waste disposal (in compliance with laws) and also get renewable bio-gas as cooking fuel along with organic fertilizer for plants. The community benefits immensely through reduced health-care and waste disposal costs.
- **Innovativeness:** A most convenient, easiest and reliable method to process waste at the lowest cost of ownership.



Geographical Region Targeted

Western India



Cost

- Rhino 20 : INR 2.5 Lakhs
 - Rhino 75: INR 6.0 Lakhs
 - Rhino 150: INR 10.0 Lakhs
- (Approximate capital investment to process 1000 kg of waste is 50 Lakhs.)



Sold

15



Product Positioning

Cafeterias, hotels, canteens and housing societies.



National/Societal Relevance

To find sanitary methods to deal with bio-degradable waste is a significant global challenge. The waste is responsible for over 12% of greenhouse-gas emissions. In addition to air pollution, it is also contaminating soil and water resources and creating a breeding ground for infectious diseases such as the plague and cholera.



IP Status

Patent Granted: 295520



Import Substitution

NA



Export Potential

The product has export potential to Island Nations, South-East Asia, Africa, Latin America and South Africa. Mainly developing nations are targeted.



Major Achievements (including awards)

- Won Swachh Bharat Grant Program - 2018.
- Sustainable business developed.
- In process of scaling up operations.

TouchHb: Non-Invasive Haemoglobinometer



Unique Selling Point

- A device which calculates estimated value of haemoglobin without any invasion/prick. It works on the principle of reflectance photometry and is used on the right eye with exposed conjunctiva.
- The device captures the image of the exposed conjunctival palor and differentiates between the redness and the paleness of the palor and gives an estimated value of haemoglobin. Designed majorly for screening anaemia and has helped major rural areas in India.
- **Innovativeness:** India's only non-invasive hemoglobinometer which is a pain free/needleless device



Geographical Region Targeted

India



Cost

INR 25000/ 5000 tests



Sold

1000



Product Positioning

Hospitals, PHCs, Pregnant and anaemic women, malnourished children, lactating mothers.



National/Societal Relevance

TouchHb has been used by many state governments of India in their anaemia screening programs and has been well appreciated. Also, it has helped the governments in anaemia eradication program where TouchHb has created a difference in screening while eradicating anaemia. Being Non-invasive, it is well accepted by the majority of the population of India and has no recurring cost in its operation.



IP Status

Patents Published: 1) P4092IN00 and 2) P5777IN00



Import Substitution

NA



Export Potential

NA



Major Achievements (including awards)

Recognised by Govt. of Rajasthan and Karnataka.

Truenat™ Dengue: Real Time Reverse Transcription Polymerase Chain Reaction (RT-PCR) test for Dengue



Unique Selling Point

- A disposable, room temperature stable, chip-based Real Time RT-PCR test for quantitative detection and diagnosis of Dengue virus in human (blood/serum/plasma) specimen.
- Test can be run at a point of care on the Truelab™ Real Time Quantitative micro PCR Analyzers (operating on a compact battery-operated system with single testing capability). Only 6 µL of purified RNA is required for the analysis and result is provided within an hour which can be transferred in real time (through SMS/email) to doctors.
- Truenat™ Dengue chip also carries test and batch related information (including standard values for quantitation). It further stores the information of a used chip to prevent its re-use.
- **Innovativeness:** World's First molecular diagnostic test for Dengue.



Geographical Region Targeted

Global clinical diagnostic market mainly LMIC



Cost

- Truenat™ Dengue: INR 1000
- Truelab™ Uno Dx: INR 7 lakhs



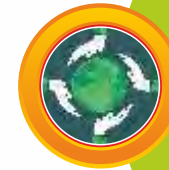
Sold

20,000
(To Labs and hospitals using Truelab™ Real Time micro PCR platform)



Product Positioning

Private and public sector laboratories, hospitals, healthcare and wellness centres, mobile diagnostic clinics, medical colleges, NGOs etc. located in tier 1, tier 2 and tier 3 cities for point of care diagnosis of infectious diseases.



National/Societal Relevance

Incidence of Dengue in India has been rising for the past two decades. Dengue is largely prevalent in tropical geographies across Asia, Africa, South America, Middle-East, Caribbean and Mediterranean region, where it is critical to provide early and accurate diagnosis to patients at the point of care. Also, both Dengue and Chikungunya Viruses are arboviruses, mainly transmitted by the mosquito – Aedes aegypti, thus cases diagnosed as Dengue could be a co-infection with the Chikungunya Virus. Hence, precise confirmation of the differential diagnosis will enable better prognostic monitoring and intervention. With no specific treatment for either, uncomplicated cases get complicated.



IP Status

Patent Filed - 02162/CHE/2010.



Import Substitution

Truenat™ makes accessible, quality, regulated PCR equipment and kits thus it substitutes expensive conventional imported PCR platforms and unregulated 'home brewed' PCR reagents (manufactured and used by some centralized laboratories).



Export Potential

- Sales activity has begun in about 12 countries including: Peru, Chile, Albania, Tunisia, Nigeria, Bangladesh, Nepal, Sri Lanka, West Indies etc.
- Product is getting registered in about 20 other countries through local distributors.



Major Achievements (including awards)

Successful validation of Truenat™ Dengue at Centre for Clinical Management of Dengue and Dengue Haemorrhagic Fever – Sri Lanka, with recommendation to use the test at specialized centers for management of Dengue infection island-wide.

Trypsin Clearance Assay- ELISA Kit



Unique Selling Point

- Protease enzyme Trypsin is widely used in Insulin manufacturing to cleave peptide linkers from the pro-drug (Proinsulin).
- Presence of residual Trypsin used during downstream processing of biological drugs pose a major issue in their shelf life stability as well as has health safety issues. Trypsin Elisa Kit monitors this residual trypsin in recombinant insulin manufacturing process.
- **Innovativeness:** Developed an Elisa assay kit and a process to isolate pan reactive anti-trypsin antibodies (resistant to trypsin digestion).



Geographical Region Targeted

India, Dubai and planning to go global (through Biocompare.com)



Cost

NR 35,000-40,000/kit (Discount available if ordered in bulk (50-100 kits) or make 100 % advance)



Sold

>250 Trypsin ELISA kits plus few mg of anti-Trypsin antibodies.



Product Positioning

- Major Insulin manufacturers in India.
- For academic research and in food industries



National/Societal Relevance

- Clearance of Trypsin can be monitored used in downstream processing of Biologics and Biosimilars.
- Enables purifying Trypsin from native and recombinant source.
- Trypsin inhibiting antibodies could be used as therapeutic agent for treating pancreatitis, shock and disseminated intravascular coagulation.



IP Status

NA



Import Substitution

NA



Export Potential

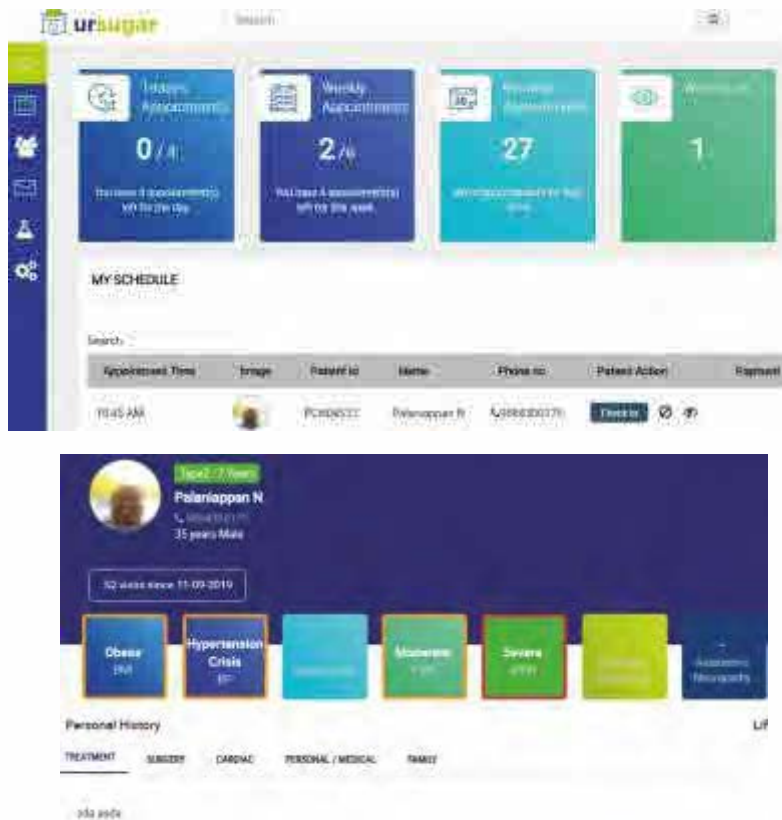
Limited to Insulin manufacturing companies as of now.



Major Achievements (including awards)

- Recipient of DBT BIRAC-BIG-C-CAMP grant and - BIRAC- SBIRI grant.
- Received DST-Lockheed Martin-FICCI -IIGP 2014 Top 30 Innovators Award.
- Jointly won Villgro's Unconventional Chennai & Impact-a-preneur Quest award for developing a method for rapidly detecting Urinary tract infection (UTI)
- Affigenix was one among the five winners selected in "Healiat 2016" jointly organized by Narayana Health, C-CAMP and Axilor Ventures.
- Karnataka state government department of IT & BT recognized Affigenix under the Bio-excellence award for service category and awarded as Emerging start-up company at Bangalore- India Bio 2016, 2017 and 2018, 3 years in a row.
- Affigenix Bangalore facility is NABL accredited and ISO 9001, 2015 certification.

Ursugar: Digital Diabetes Management Platform



Unique Selling Point

- A Diabetes Management Platform with clinical decision support to provide the standard of care based treatment in diabetes. It uses AI and Deep Learning technologies to aid doctors in providing personalized treatment to the patients.
- Ursugar works as a digital doctor, by helping the patients and their family to increase the adherence of treatment. It has features like; intelligent chatbots and audiobots to stay in touch with the patients between 2 consecutive visits to a doctor's clinic and can tracks the progress of the treatment effectively. It aims to stay as an intelligent digital companion during the course of the treatment process.
- **Innovativeness:** The innovation offers a Doctors module which has access to patients' demographic details & diabetic history, allergy details, lifestyle, prescription, lab test requests & uploaded data, EMR.



Geographical Region Targeted

Across the globe



Cost

INR 21,000/year/doctor license



Sold

30 units



Product Positioning

B2B: Doctors and diabetic centres.



National/Societal Relevance

- Diabetes in India has grown by over 100% in the last 15 years and it is estimated to touch 100 million patients in 2030. The present innovation:
- Act as a platform to standardize the process of treatment of Diabetes in line with the recommendations of the National program recommendations for Doctors
- With Clinical decision support available, it improves the quality of treatment across PHCs in the country.



IP Status

NA



Import Substitution

NA



Export Potential

The innovation have export potential to ASEAN Countries.



Major Achievements (including awards)

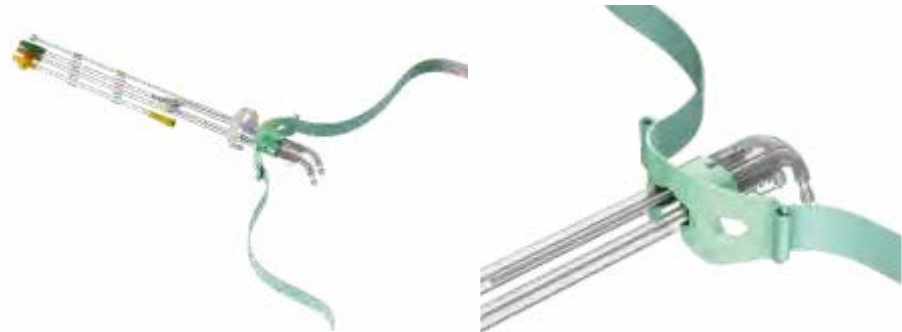
Incubated at HTIC- MTI.

VapCare: Automated Secretion Management and Oral Hygiene System for Ventilated Patients



Unique Selling Point

- It is a first-in-the-world automated secretion clearance and oral hygiene management system for ICU patients on ventilators. It is a holistic system that clears secretions from three locations (oral, oropharyngeal, subglottic) and performs oral lavage to comprehensively reduce the risk of VAP in these patients. The system comprises of a Main Control Unit, a Sensor Unit, Collection Containers, Lavage Jar and disposable lumens.
- **Innovativeness:** No equivalent product is available in the market.



Geographical Region Targeted
Across the Globe



Cost
Available on Request



Sold
2 units



Product Positioning
Hospitals – tertiary care with ICUs.



National/Societal Relevance
VAP (Ventilator Associated Pneumonia) is one of the top causes of deaths due to Hospital Associated Infections, leading to 2.5L deaths in India annually. One of the major causes of VAP in India is the lack of compliance to manual oral hygiene protocols. The VapCare system eliminates the need for manual secretion clearance and oral hygiene management, saving ICU nurses' time, improving compliance to infection prevention protocols and minimizing chances of cross infection. Thus, VapCare reduces the risk of acquiring VAP, potentially saving thousands of lives.



IP Status
• Patents granted: India 301165; USA US9750910B2; China CN 107072760B
• Patents applied: Europe - EP3166533A4; Japan - JP2018126581A; Brazil - BR 11 2017 002798 4



Import Substitution
NA



Export Potential
The Product has immense potential for export. It has a value proposition in both developed markets (through labour cost savings) and developing markets (improving infection prevention practices). US FDA registration is in place and European CE certification is in progress to facilitate export.



Major Achievements (including awards)
• Completed 30-patient safety/efficacy trial with excellent results.
• 30+ Hospital demos completed.
• Winner of multiple awards in India and abroad.
• Development supported by multiple BIRAC-led grants.

**VIBRIOSHIELD and ELIXIR:
Antimicrobial Preparations Against Vibriosis**



Unique Selling Point

- VIBRIOSHIELD and ELIXIR are all-natural, non-chemical antimicrobial preparation for controlling the Vibriosis.
- These 2 products are loaded with high concentrations of potent naturally occurring bacteriophages (as an active ingredient) that can selectively and specifically eliminate Vibrios from the culture ensuring higher yield and profitability.
- **Innovativeness:** Only bacteriophage based product in the market with a unique mode of action.



Geographical Region Targeted

India, South east Asia, Latin America



Cost

- Vibrioshield : INR 7500/kg
- Elixir: INR 6000/ kg



Sold

8 Tons



Product Positioning

B2B



National/Societal Relevance

- Massive use of antibiotics has been employed to maintain aquaculture and thus spread of antibiotic resistance from aquaculture settings to the natural environment is increasing. Also residues of antibiotics have resulted in rejection of shrimp containing traces of antibiotics by seafood importing countries.
- Thus the Bacteriophage therapy has following advantages to the country:
 1. Increase in shrimp production by avoiding loss due to vibrios.
 2. Increase in acceptance of the Indian shrimp in global market due to the decrease in use of antibiotics.
 3. Prevention of spread of antibiotic resistant bacteria and residual antibiotics in the fish consumed by human.



IP Status

Patent filed: E-2/1408/2019/CHE



Import Substitution

Product found to be superior as compared to the imported probiotics (in the market) by the hatcheries.



Export Potential

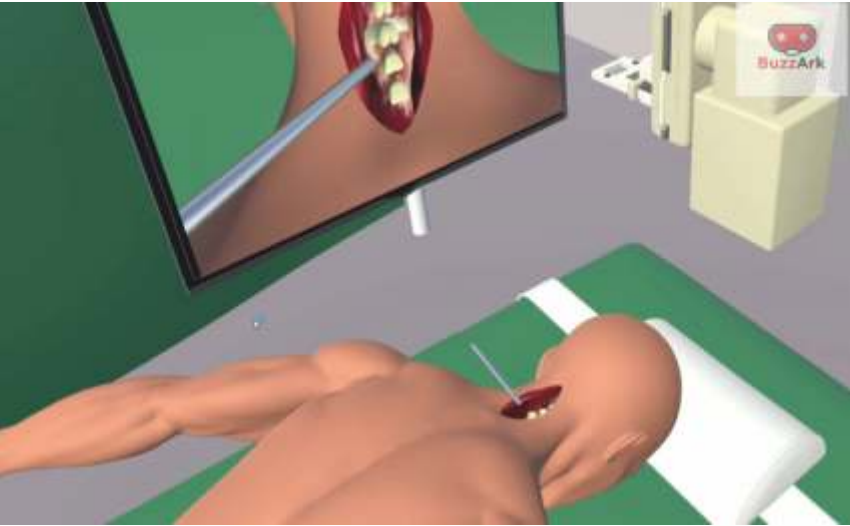
The shrimp industry is close to \$ 5 billion and Vibriosis, EMS and mortality due to vibriosis is a major problem in the industry. There is a potential to export 1000 metric tons of the product.



Major Achievements (including awards)

Best innovator award from BIRAC, 2013.

Virtual Reality Based Surgical Training Simulator



Unique Selling Point

- The Company builds Virtual Reality Based Surgical training simulator with integrated haptics to provide immersive training in virtual environment. It allows the surgeon to practice and learn the basic surgical skills in Laparoscopic surgery and further practice full surgery procedures. On the whole the Company intends to build a complete VR based Medical Training tool to be used by surgeons studying and practicing, and nurses and medical practitioners
- **Innovativeness:** The innovation has the advantage of modular approach; new simulation software modules can be added to one time setup hardware. The simulators portability allows for the training equipment to be used in remote rural parts of the country as well. Minimal setup and self-learning attributes of the simulator are also key differentiators.



Geographical Region Targeted

- Initially, India later to global market



Cost

INR 15 Lakh/Simulator unit (*Subscription model are also available for each simulation package*).



Sold

Pre-orders:1



Product Positioning

B2B: Teaching Medical Universities and Nursing Training Institutes.



National/Societal Relevance

Currently non immersive mannequins are used for medical skill and protocol based training .These are costly equipment and the training rendered in these equipment are non-immersive



IP Status

- Provisional patent filed
- In process of a design and utility patent



Import Substitution

The Imported simulators do not cater to the Specific Indian anatomy and their practices are not best suited to the Indian Medicos .The present innovation hence incorporates the methods best used by the surgeons and thus substitutes the imported products which are priced at 5x cost of the innovation and have lesser portability.



Export Potential

The product has great export potential, once the Company have proven customer base in India , they have started their initial testing and validation studies for the US market .Global market is valued at \$5 Billion USD for Medical Simulation.



Major Achievements (including awards)

- Incubated in IIT Madras Medtech Incubator, 2019.
- Won 2nd prize in Global Medtech Challenge for \$200k conducted at M2D2 center at UMASS Lowell in USA.



X3D-PSI™: Software Tool for Total Knee Replacement Surgery



Unique Selling Point

- It is X-ray to 3-D based Patient Specific Instrumentation (surgical guide) design (which can be 3D printed) is used to make accurate bone resections required for accurate implant placement during knee replacement surgery. The PSI is designed automatically using the proprietary cloud-software named Tabplan3D (www.tabplan3d.com).
- Only a 2-D X-ray image needs to be inputted in Tabplan3D software making X3D-PSI very cost effective and safe. This method of instrument design will have short fabrication cycle because of the automatic product design via cloud-based platform.
- **Innovativeness:** The innovation works with existing imaging systems and provides surgical guides in addition to the 3D surgical plan in a time span of 1-2 days.



Geographical Region Targeted

India, US and China.



Cost

INR 10,000-20,000 (Depending on the hospital)



Sold

25



Product Positioning

- Hospitals which perform high-volume knee replacements (>500 a year).
- Knee replacement surgeons.



National/Societal Relevance

India has millions of cases of arthritis based joint replacements. Traditional methods of treatment are inaccurate and recent available 3D accurate methods are very costly and time-consuming. Additionally, the new solutions also require extra costly CT/MRI. Hence the accurate 3D solution (X3DPSI) is developed which is 10 times faster and affordable to patients



IP Status

Patent Granted: "A Portable System and Method for 3-Dimensional Surgery Planning Using Conventional 2-Dimensional X-Ray Images"



Import Substitution

NA



Export Potential

The innovation has a market potential of around \$3Bn for joint replacements in US.



Major Achievements (including awards)

- Selected by Y-Combinator (2018).
- Received other national and International recognitions.

Testimonial

“ BIRAC and the unique biotech ecosystem nurtured by it have played invaluable roles in our entrepreneurship journey at SynThera. We strongly believe that the future is bright for us and other innovative biotech startups, and we deeply appreciate the BIRAC team's undying efforts to make it all happen. ”

**Dr. Nilay Lakhkar, Founder
SynThera Biomedical Pvt. Ltd.**

Testimonial

“ With a teeming population of a Billion, meager public spends in Healthcare and skyrocketing individual medicals spends, India truly needs a revolution in Healthcare. The good news is that the horizon looks bright. With the Department of Biotechnology through BIRAC and such other focussed organizations pushing for an eco-system that supports healthcare innovations, we are at the cusp of a great good change. In the last 2 years, Healthcare focussed Accelerators, Incubators and Early Stage Funds have started arriving on the scene and it is these initiatives which will support the new healthcare entrepreneurs who are looking to question the status-quo and drive change. ”

**Dr. Ramesh Byrapaneni, MD
Endiya Partners**

Testimonial

“ Sohum has been supported by BIRAC, DBT, Grand Challenges Canada at critical stages of the newborn hearing screening project. I always feel that BIRAC has a great team that understands the need and keeps themselves up to date. The biggest component of the BIRAC as an organization is the trust which they put into innovators and their ideas. I am always indebted to them for the support they extended to the humble beginning. ”

**Nitin Sisodia, Founder & CEO
Sohum Innovation Lab**

Testimonial

“ There can be no amount of articulation that suffices when it comes to underlining the vital and critical role that ecosystem partners like BIRAC play when it comes to nurturing deep-tech startups through capital grants, through capacity building programs and making those vital connections to people who matter. ”

**Adarsh Natarajan, Founder
Aindra Systems Pvt. Ltd.**

Testimonial

“ We would like to congratulate BIRAC on its yeoman work to nurture and develop the biotech startup ecosystem in India. Our company, Actorius Innovations and Research Pvt. Ltd., received seed capital under the BIG scheme and continued support through SBIRI grants. The support from BIRAC was a prelude catalyst to our platform technology, the OncoDiscover Liquid Biopsy Technology in detecting tumor cells in cancer patients. ”



Dr. Jayant J. Khandare, MD & CSO
Actorius Innovations and Research Pvt. Ltd.

Testimonial

“ The overwhelming support by BIRAC in our journey has not only nurtured us but also helped us to hinge our ability to incorporate the spirit of excellence at all the levels. The acknowledgement by BIRAC in selecting our product helped us in getting investors to invest in us to some extent. We have received an investment of 1\$ million. The hand holding by BIRAC helped us to reach the place where we are known. ”



Ritu Malhotra, Co-Founder
EzySpit

FIBROHEAL: Silk Protein Derived Wound Dressing



Unique Selling Point

- A silk protein based wound healing sheet which contains two active components such as activated silk matrix and asiaticosides from (Centella asiatica). It is Bio-compatible, non-toxic, with faster healing rate and enhanced epidermal growth functionality. Further it provides protection to wound from secondary infection, gradual bio-degradation of wound contact part, easy removal of dressing (as silk protein has natural moisturising factor) during recovery/post-healing phase, and minimization of scar. The product shows increase in migration rates of skin cells and enhancement of the initial skin cell adhesion which leads to faster tissue regeneration and wound closure.
- Innovativeness:** Several key features are:
 1. Non Mammalian source and perfectly bio-compatible.
 2. Faster and better wound healing since amino acid sequence (GAGAGS) in Silk acts like growth promoters.
 3. Reduced pain within 24 hours of application.
 4. Better scar management and reduced hypertrophic and atrophic scars.



Geographical Region Targeted

Currently India



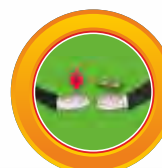
Cost

- Fibroheal Sheet: INR100 -1100 (based on different sizes)
- Fibroheal Powder: INR 199/10gm
- Fibroheal Ointment: INR 210/10gm



Sold

Around 36000 Units



Product Positioning

Presently Major central and State Govt hospitals, PSU hospitals and some major private hospital chains are the customers and prospective buyers.



National/Societal Relevance

India is a second largest producer of silk globally. Silk as biomaterials is being investigated through research in various biotech labs all over the world for use in tissue engineering and reconstructive surgery. It is a versatile biomaterial, non toxic, non allergenic and biodegradable. Further, Non textile uses of silk would create secondary income from silk waste for reelers and farmers.



IP Status

- Patent Granted: 245840
- Provisional Patent: 201941013490



Import Substitution

The present innovation tries to address non-healing, slow healing and difficult to heal acute and chronic wounds and have received appreciation for the same by the surgeons. Thus, It has lot of potential to bring down imports.



Export Potential

After the Post approvals of various regulators the products will have great potential for export since it is able to cure tough wounds in a much faster rate which brings down overall cost of treatment. Also, the company is exploring CE registration so that the product can be exported to the developed countries.



Major Achievements (including awards)

- Winners of Elevate 2019, organised by Department of ITBT, GoK.
- Approved as a start up in Startup Karnataka.
- BIRAC award for best innovation in 2014.
- FKCCI award for innovation in emerging technologies for non textile application of silk.
- Raised 0.5 MN USD (3.5 Cr so far) from founders and a VC firm.



Oral Thin Film Platform: To Deliver Nutraceuticals, Pharmaceutical, Cosmetics & Personal Care



Unique Selling Point

- Oral dispersible films (ODF) are the most successful among all the fast release dosage forms due to the ease of formulation.
- It is easily dissolvable, convenient and user-friendly. Also, it provides ease of swallowing and can be administered without water. It is convenient for patients suffering from dysphagia, repeated emesis, motion sickness and mental disorders.
- **Innovativeness:** Platforms offer an alternate to; tablets and capsules, pastes and gels, ointment and creams and liquids (which are used for oral delivery of Nutraceuticals, drugs and food supplements)



Geographical Region Targeted

India, US, UK and Europe



Cost

- Introductory Pack: INR 480 (8 strips)
- Starter Pack: INR 3,360 (56 strips, Discount 35%, Cost to Customer: INR 2,184)
- Charge Up Pack: INR 7,200 (120 strips, Discount 40%, Cost to Customer: INR 4,320)
- Runner's Pack: INR 14,400 (240 strips, Discount 40%, Cost to Customer: INR 8,640)



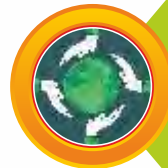
Sold

Pre-orders available



Product Positioning

- For Sports personnel, Women and Child Health and Oral Care
- Sales Channel
- E-commerce and Distributors



National/Societal Relevance

Through this platform a variety of chemicals, food and biological entities can be delivered at a high dose of actives compared to current thin films.



IP Status

- Patent Granted:201741000424
- Patent published: 1) PCT/IN2018/050007 & 2) PCT/IN2018/050619
- Patent filed: PD025586IN-SC



Import Substitution

- ORAL FILMS:LTS LohmannTherapie-Systeme AG, INDIVIOR, NAL PHARMA, INTELGENX CORP, NORGINE, APR and C.L. Pharm
- BUCCAL FILMS: BIODELIVERY SCIENCES
- OTHERS: Dissolvable Packaging Films and Monosol



Export Potential

The product is exported to US under the brand "Presto Power Strip".



Major Achievements (including awards)

- Winners at Elevate-2018.
- Product launched on BIRAC day.

Parvocure Tablets



Unique Selling Point

- The innovation is used to treat parvoviral enteritis.
- **Innovativeness:** It is one of its kind products.



Geographical Region Targeted

Across the globe.



Cost

INR 200/ tablet.



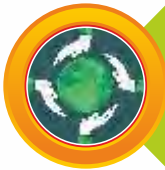
Sold

37066 in numbers,
Pre-orders:100000 in numbers



Product Positioning

B2B: Veterinarian, Kennel owners, Blue cross, Clinician.



National/Societal Relevance

Chicken IgY based enteric protected oral formulation is developed by the Company for treating parvoviral enteritis in dogs. The therapeutic formulation has been proven highly effective in treating the clinical disease during the limited evaluation studies.



IP Status

Provisional Patent Filed: 201641043995.



Import Substitution

No equivalent product in market.



Export Potential

The product has export potential.



Major Achievements (including awards)

Received BIG Grant, SIBRI Grant and IITM BIRAC seed fund.

Phytochemical Reference Standards



1'-Acetoxychavicol acetate	Colchicine	(-)-Hydroxycitric acid calcium salt	Punicalagin (α/β)
3-O-Acetyl boswellic acid (α/β)	Corilagin	(+)-Hydroxycitric acid lactone	Punicalin (α/β)
3-O-Acetyl- α -boswellic acid	Corosolic acid	5-Hydroxy-1-(4-hydroxy-3-methoxyphenyl)-	Pyrogallol
3-O-Acetyl- β -boswellic acid	<i>m</i> -Coumaric acid	7-(3,4-dihydroxy-3-methoxyphenyl)heptan-3-one	Quercetin dihydrate
3-O-Acetyl-11-keto- β -boswellic acid	<i>p</i> -Coumaric acid	4-Hydroxyisoleucine	Quercetin-3-O-robinobioside
Agnuside	Crocin dialdehyde	Hypophyllanthin	7-O-glucoside
Alizarin	Curcumin	Iriflophenone-3-C- β -D-glucopyranoside	Quercetin-3-O-rutinoside-
4-Allylpyrocatechol	Cycloolivil	Isodemethylweddelolactone	7-O-glucoside
Allylpyrocatechol-3,4-diacetate	Deacetylgnemnic acid	Isoeugenol	Rebaudioside A
Andrograpanin	Degalaetofogonin	Isoformononetin	Reserpine
Andrographolide	2',3'-Dehydrosalannol	Isoforskolin	Rosmarinic acid
<i>trans</i> -Anethole	Demethoxycurcumin	Isoliquiritigenin	Rubiadin
Apigenin	14-Deoxy-11,12-didehydroandrographolide	Isoliquiritin	Rubuphenol
Apocynin	1-Deoxyforskolin	Isovitexin	Rutin
Aristolochic acid I	1-Deoxynojirimycin	Jujubogenin isomer of bacopasaponin C	Scopoletin
Arjunetin	12-Deoxywithastramonolide	(Syn: Bacopaside X)	Sennoside A
Arjungenin	1,9-Dideoxyforskolin	Kaempferol	Sennoside B
Arjunic acid	3,3'-Di-O-methyl ellagic acid-4'-O- β -D	Kaempferol-3-O-robinobioside-7-O-glucoside	Serratol
Arjunlucoside II	xylopyranoside	Kaempferol-3-O-rutinoside	Sesamin
Artemisinin	Diosgenin	Kaempferol-3-O-robinobioside	Shatavarin IV
α -Asarone	Docosyl caffeate	11-Keto- β -boswellic acid	6-Shogaol
β -Asarone	Edalbasaponin I	Koenigicic acid	β -Sitossterol
Asiatic acid	Edalbasaponin II	Koenimbine	β -Sitossterol-D-glucoside
Asiaticoside	Eicosyl caffeate	Lapachol	Skullcapflavone I
Aspidinol	Elemolic acid (α/β)	L-Dopa	Specioside
Aspidinol P	Elemonic acid (β)	Licochalcone A	Stevioside
Atlantone	Ellagic acid	Liquiritigenin	Stigmasterol
Azadirachtin-B	Embelin	Liquiritin	Swertiamarin
			3 β -Taraxerol

Unique Selling Point

- The Phytochemical reference standards are the bioactive phytochemicals isolated from different medicinal plants. They are employed in quality measurements in herbal industry worldwide; as a standard in a phytochemical assay, identification or purity tests and also in pharmaceutical preparations.
- Innovativeness:** The innovation offers a quality product at competitive prices as compared to the available Phytochemical reference standards which are expensive in general. Also, the Company provides high level quality documentation that meets international requirements.

Geographical Region Targeted

Across the globe

Cost

5000 to 15000/- per unit.

(Units typically range between 5 mg to 10 mg).

Sold

597 units

Product Positioning

- B2B: International customers like Chromadex, USA.
- B2C: Research institutes, colleges and herbal companies in India.

National/Societal Relevance

Phytochemical reference standards address the quality-related testing needs of the biopharmaceutical community.

IP Status

NA

Import Substitution

NA

Export Potential

The company leads in the supply of Phytochemical reference standards in India and further believes to take up the export potential level up to 20 Cr./ year.

Major Achievements (including awards)

Largest supplier of indigenously developed phytochemical reference standards in India.

Regrow Cell Therapy Platform for Human Cell and Tissue-based Products



Unique Selling Point

- Regrow Biosciences is a biotechnology organization focused on the research, development and commercialization of regenerative medicine-based cellular therapies. This technology aims to provide biological and curative clinical benefits to patients with disability and life-threatening medical conditions.
- Lead Products include:**
 - OSSGROW®**- Autologous Cell Therapy for Bone Regeneration, indicated for the treatment of avascular necrosis of hip joint. It can also be applied for non union fractures, bone dysplasia, and spine & maxillofacial applications.
 - CARTIGROW®**- Autologous Cell Therapy for cartilage repair, indicated for treatment of Cartilage Defects of Knee.
- Innovativeness: Regrow products are curative not just managing disease. Autologous Cell therapy for bone and cartilage regeneration uses the patient's own cells thus rendering complete safety.

CELL THERAPY PROCESS



Geographical Region Targeted

Pan India & International markets like US, Europe, Japan & China



Cost

OSSGROW : INR 1.4 Lakhs (Approx 2000 USD)
CARTIGROW : INR 1.4 Lakhs (Approx 2000 USD)



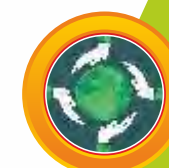
Sold

Products are made accessible at various government & private hospitals.



Product Positioning

- B2B** :Orthopedic surgeons specializing in Trauma, sports medicine and joint replacement specialists. Widely used in both private Government hospitals.



National/Societal Relevance

- Regrow Cell Therapy products and procedures are biological, minimally invasive and curative.
 - The disease progression is ceased, the patient is free of pain and hence, no further revision surgery required.
 - Patient activity levels are restored, including getting back to professional level sports.
- National Impact:** Dependence on foreign metal implants will be reduced & replaced by Indigenous biological cell-based products.



IP Status

- 32 patent applications have been filed globally in India & in major international markets like US, Europe, China, Japan, Singapore & Africa



Import Substitution

- Potential to save import costs worth \$ 400-500 Mn.



Export Potential

- The product can be exported to various international markets & can generate revenue of over more than \$1 Billion in next 5 years.
- Seamless Cold Chain logistics technology for Scale- UP.



Major Achievements (include awards)

- Conducted successful Multicentric Phase 3 clinical trials in India for the first two Cell-based products for orthopedic conditions.
- India's first two Cells based Drugs received approval from Drug Controller General of India, Ministry of Health & Family Welfare, GoI 2017.
- OSSGROW® (Bone Cell therapy) has been granted Orphan Drug Designation from USFDA in 2018 and from EMA (Europe) in 2019.

ROTAVAC® : Rotavirus Vaccine



Unique Selling Point

- India's first indigenously developed Live Attenuated Oral Rotavirus vaccine.
- It contains monovalent neonatal human naturally attenuated G9P[11] strain and it is given in lowest dosage volume with no reconstitution required.
- It is expected to significantly reduce infant deaths occurring due to Rotavirus diarrhoea in India and other parts of the world.
- **Innovativeness:** With easy administration and lowest cold chain footprint it is the lowest priced rotavirus vaccine in the world.



Geographical Region Targeted

Developing and under-developed countries



Cost

INR 50-70/ dosage.



Sold

80 million doses



Product Positioning

Government and Domestic supplies, UNICEF



National/Societal Relevance

Worldwide Rotavirus diarrhoea causes 450,000 deaths annually including 110,000 deaths in India alone. Mostly Children (under 5 years of age) get affected.



IP Status

- Patents Granted:
 - PCT/IN2007/000190
 - PCT/IN2010/000041
 - PCT/IN2013/000272
 - PCT/IN2017/050237



Import Substitution

NA



Export Potential

As per WHO Global Vaccine Market Report there will be requirement of over 200 million doses of rotavirus vaccine in 2019. Bharat Biotech has the ability to manufacture the same thus indicating a huge global market potential.



Major Achievements (including awards)

World Health Organization (WHO) had approved ROTAVAC®.

Synthesis Platform for O-Glucuronides of Drug Molecules and Their Deuterium Labeled Analogues.



Unique Selling Point

- O-Glucuronides: Drugs are frequently found as their O-Glucuronides during toxicological investigations or clinical trials. O-Glucuronides are extensively used for Bioavailability/Bioequivalence (BA-BE) studies and are used by Pharma companies for Abbreviated New Drug Application (ANDA) studies. The company has developed synthesis platform for the production of O-Glucuronides.
- Deuterium (D)-labelled drug entities: These are required for pharmacokinetic studies in both the preclinical and clinical phases of drug discovery and thus are widely used by pharmaceutical industry. Their Synthesis requires an appropriate deuterium labeled starting material. The company is manufacturing these D-labelled drug entities using the in-house developed technology.
- **Innovativeness:** Developed an innovative Deuterium exchange platform to manufacture unique deuterium labeled drug entities.



Geographical Region Targeted

India, North America, South America, and Brazil



Cost

- D-labelled drug entities: INR 1 Lakh-2 Lakh/10mg
- Glucuronides: INR 2 Lakh-6 Lakh/10mg



Sold

- D-labelled drug entities: 200
- Glucuronides: Several units



Product Positioning

Major pharmaceutical companies and CROs.



National/Societal Relevance

Products will be used as standards during clinical trials of generic drugs. It can be used by Pharma Companies to develop new drugs.



IP Status

NA



Import Substitution

Biorganics substitutes the products presently imported by Indian CROs and Pharmaceutical industries



Export Potential

There is a huge potential for both the products. The company is already exporting D-labelled drug entities.



Major Achievements (including awards)

Got "Ujwala Udhya Award" 2018 from Karnataka Small Scale Industrial Association.

Testimonial

“ In our journey so far BIRAC and DBT has played a significant role in helping and empowering us to succeed with our concept product FIBROHEAL, right from ideation to commercialization. We are honoured and glad that we are children of BIRAC and with their support, we have been able to achieve whatever we have achieved so far. We look forward to have continuous support from BIRAC and help us to become a global leader in area of wound care management.”



**Vivek Mishra, Director & CEO and
Bharat Tandon, Director
Team of Fibroheal Woundcare Pvt. Ltd.**

Testimonial

“ Armed with a concept, a few experiments and a belief that we could commercialize this product, I approached BIRAC for grants. They thoroughly evaluated the proposal, liked the concept and funded the development. Just by going through the process, I got a far clearer idea of the details that would need to go into converting this concept into a commercially viable medical device. This is the biggest value BIRAC has added to my startup.”



**Malay Dikshit, Founder
Piscium Health Sciences Pvt. Ltd.**

Testimonial

“The evolution of a systematic and ever growing innovation ecosystem in the medtech and biotech space could not have been possible without BIRAC, its energetic team and the dynamic leadership. Most of the entrepreneurial journeys are often difficult and too lonely. For us, BIRAC has always remained as an inclusive parent over the last five years helping us mature our zeal to its present day dissemination across various states in India. Thanks BIRAC for always being there for us!”



Dr. Pawan Mehrotra, Founder
Aarna Biomedical Products – A Social Enterprise

Testimonial

“Birac has played a huge role and taken a risk along with entrepreneurs like us in supporting bold concepts from idea stage to proof of concept to commercialization. They have bridged many gaps and accelerated the product development phase through funding, regulatory mentoring & support. BIRAC has also given us access to international platforms through Ignite fellowship and similar programs. Thanks for believing in our idea and scrutinizing us towards a successful startup.”



Geethanjali Radhakrishnan
Aduvo Diagnostics Pvt. Ltd.

Testimonial

“ BIRAC through tiered funding, mentoring, reviews, networking opportunities and policy clarifications has enabled us to create a portfolio of innovative products. Their support helped us navigate the complex, resource intensive, regulated world of MedTech development.”



**A. Vijayarajan, Founder & CTO
InnAccel Technologies**

Testimonial

“ BIRAC has been at the forefront of funding translational research in India and has been the go-to agency for everything starting from an idea to commercialisation including regulatory support. We have benefited tremendously from BIRAC's support both for our SYNC glucometer project and now for our CholChek project. I congratulate BIRAC on supporting commercialisation of 125+ medtech products for India and I firmly believe that India will soon be a medtech exporting nation with BIRAC's support!”



**Prof. Rohit Srivastava
IIT-Bombay**

Algal Docosahexaenoic Acid (DHA)



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AlgalR NutraPharms Pvt. Ltd.



Unique Selling Point

- AlgalR manufactures a 100% Vegetarian DHA (an important omega-3 fatty acid) from microalgae. Algae DHA oil and DHA powder are manufactured in compliance with the set of industrial standards, FSSAI, CODEX, ISO 22000:2005 and European standards, using patented technology.
- The by-product, deoiled biomass cake, has also been commercialized to poultry, pet-food, and aquaculture industries for value-addition.
- Innovativeness:** Product matches specifications with global market leader-DSM's life's DHA and DHA-gold, on price, and with Chinese companies on quality and purity.



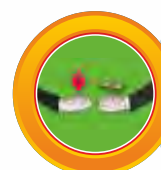
Geographical Region Targeted

India, North America, South America, Asia, and Europe



Cost

INR 4600 – 5500/Kg



Sold

500 Kg



Product Positioning

- India:** Siddharth International, Arjuna Naturals, Geltec, EmamiAgro Foods, Akums, Plant Lipids, Humanetics, Cirus Lie Sciences
- International:** Camlin Fine Sciences, India & USA, Rosun Naturals, India & Canada, Aurora Nutrition, USA, Puredia, USA, GSI & Stata Pharm, Malaysia



National/Societal Relevance

Since the product has various health benefits, thus its inclusion in infant formula and kids' nutrition will make the young Indian children healthy. Internationally, China has mandated the inclusion of Algal DHA in all their infant formula, edible oil, milk, and all functional food and supplements. Also, the US and Europe are utilizing around 10,000 MT/Annum of Algal DHA for their infant formula and functional food and feed supplement for animal nutrition.



IP Status

Patent Published: 201641010123 A



Import Substitution

Increase in the production capability will reduce dependency on importing Algal DHA



Export Potential

- Globally there is a demand for high pure DHA in triglycerides (TG) form. AlgalR is offering it in 100% TG form of 70% Algae DHA oil and 95% total omega3.
- The company is in a process of signing contract manufacturing of 45 MT of Algal DHA oil supply to French company. Other international discussions with US-based companies are also going on.



Major Achievements (including awards)

In the process of raising the investment.

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www.algalr.com

Dr. Mohanraj Subramanian, rajmohanhp@gmail.com, +91-9489847425

Banana Rope Semi-Automatic and Automatic Machine and Eco Products



Poombugar State Award Product
Banana Rope Light Lamp



Unique Selling Point

- The semi-automatic machine produces rope 1mm to 12 mm size, and produce 1500m of banana rope/hr and require four-person powers.
- The automatic machine produces 4500 m/hr with a size of 1mm to 3mm and requires one labor.
- 12 new products from the banana pseudostem are produced viz., Bag, mat, lamp, pooja basket with durability of 2 years with affordable cost
- **Innovativeness:**
 - The product is alternate to plastic
 - Rural women employment development
 - Additional income for the banana farmers
 - Own new design product development and machine development

Geographical Region Targeted

Bihar, Orisa, Andhra Pradesh, Assam and Pondicherry

Cost

- Semi-automatic machine: INR 42,000.
- Automatic machine: INR 1,80,000.
- The 12 new products: INR 40 to 800.

Sold

- Semi-automatic machine: 12 Units
- Automatic machine: 4 Units
- The 12 new products: 1Lakh

Product Positioning

- Green graft Pvt. Ltd Bangalore
- Rope Enterprises Pvt. Ltd, IIT, Chennai
- Ramesh flowers Pvt. Ltd. Toticodin
- Balaji Exporter Karur, Tamil Nadu
- Jgc Gifts Pvt. Ltd, Hyderabad

National/Societal Relevance

The new machines marketed in Bihar, Orisa, and Andhara Pradesh and Assam through National Innovation Foundation and training was implemented use of machine and their products. Training also implemented the production of 12 new products in the above mentioned which alternate to plastic

IP Status

3 Patents Filed: 1)201741029973,
2)201741029974 and
3)201741029975

Import Substitution

NA

Export Potential

Value of 85 lakhs products exported from the company through vendor.

Major Achievements (including awards)

- Kavin Care New innovation Award.
- Boompogar, Handigraft Award from Chief Minister of Tamil Nadu.
- Best entrepreneur Award Win TV.
- MSME Best Unit Award, New Delhi.
- Investment raised- 80 Lakhs.

Banana Single Filament Silk Fiber and Extraction Unit



Unique Selling Point

- The banana fiber sheath contains a valuable silk grade fiber with natural lustre. The present innovation extracts the same from the banana sheath which can be further utilized in many other applications like making handicrafts, banana cloths as well as hair wicks.
- Innovativeness:** Unique product in terms of quality as compared to its competitors



Geographical Region Targeted

Both National and International markets



Cost

Manual operating machine: INR 60,000/unit.
(The cost of the product and machine varies with change in the quantity (output capacity of the banana fiber), quality and further modification held with the customer).



Sold
7 Units



Product Positioning

Rural entrepreneurs



National/Societal Relevance

After harvesting the banana bunch the remaining portion of the tree becomes agriculture waste, the farmers fire it in order to do next cultivation which creates a lot of smoke in the entire area. Since the present innovation extracts the valuable silk grade fiber from the banana sheath, it will further give an additional income source to the banana farmers and will also generate rural employment opportunities. Additionally, it will boost the women entrepreneurs. Thus it is societal relevance project.



IP Status

Patent Granted: 251438



Import Substitution

NA



Export Potential

No equivalent product of such quality is available at the international level. Also, many European and African countries are showing interest to buy the fiber for making various handicrafts products and wicks. Thus the product has very good export potential.



Major Achievements (including awards)

Received India International Science Festival Award.

Bioreactors for Large-Scale Production of Planting Material of Fruit Crops: Banana Cultivars



Unique Selling Point

- A technology has been developed to regenerate planting material of banana cultivars Elakki Bale (Neyyoorvan) and Rasthali using embryogenic cell suspensions produced from floral meristems which are multiplied in bioreactors and subsequently converted to embryos which germinate into plantlets. Bioreactors multiply and produce planting material at 10-20 fold without exhibiting clonal fidelity and somaclonal variations. Bioreactors act as a biological factory for production of high quality planting material of fruit and ornamental crops which are not seed propagated. Bioreactors enable a high degree of control over culture conditions (pH, aeration rate, oxygen, carbon dioxide concentrations).
- Innovativeness:** Multiplication of embryogenic cells in bioreactors will produce several fold increase in planting material, hence cost and time taken for production will be less. Since embryogenic cells are produced from the floral meristem chances of diseases infection are also less. Key differentiations from competitors would be affordability due to large number produced as compared to conventional method and higher yield and disease free condition.



Geographical Region Targeted

Southern India, Gujarat, Uttar Pradesh, Madhya Pradesh. International- Nepal, Sri Lanka, Maldives, and UAE



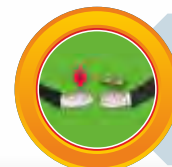
Cost

- Elakki Banana: INR 23/plant
- Grande Naine: INR 10
- Rasthali banana: INR 20



Sold

Elakki banana: 20,000 unit



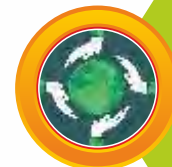
Product Positioning

Farmers, Farmers' cooperatives, nurseries, nursery agents, on-line traders.



National/Societal Relevance

The target customers are the farmers. Bioreactors provide a large number of good qualities planting material rapidly at a reduced price thus enabling tissue/cell culture banana technology to resource poor farmers. The technology will have a positive social and economic impact.



IP Status

Patent Filed: 201641026029 (being renewed)



Import Substitution

NA



Export Potential

Currently, the global demand for healthy, clean planting material of agricultural, horticulture and forestry is estimated at more than 16 trillion plants, which equals USD 4 trillion. However, the annual production of tissue culture plants is only about 1.5 billion to 2 billion, with an expected annual growth rate between 5% and 10%. The huge gap between the total demand for planting material and current supply of tissue culture products will increase the export potential of horticultural crops.



Major Achievements (including awards)

- Raised Equity funding and bank loan- 120 lakhs.
- Built a fully equipped laboratory with bank loan.
- Received Women in Entrepreneurial award 2019.



Dextrasol: Indigenously Produced Dextranase Using SSF



Unique Selling Point

- Dextrans are undesirable high molecular weight polysaccharides formed by the action of the dextranase enzyme from contaminant microorganism that home to the plant sap. Some bacterial strains like, *Leuconostoc sp.* bacteria have shown the ability to synthesize alpha-glucan polysaccharides (dextran) from the sucrose released from sugarcane. An increase in the level of dextran (greater than 1000 mg/kg (Brix basis)) increases the viscosity of the sucrose solutions in the milling and refining processes and also interferes with overall process control.
- Dextranase are the most efficient method of hydrolysing the dextrans at sugar mills. Dextrasol, is an indigenously produced dextranase which hydrolyses the dextran.
- Innovativeness:** The production technique of dextrasol involves locally available raw materials and resources with no environmental load; hence the technology is highly economically viable.



Geographical Region Targeted

U.P sugar Mills, Maharastra sugar mills, Bihar M.P., Karnataka and Andhra Pradesh, Vietnam and Bangkok sugar mills.



Cost

INR 1000/kg + 18% tax



Sold

97.5 tons.



Product Positioning

Bajaj Hindustan Sugar Ltd, DSCL Sugar, Sagewood Ltd. London, Innovation Chemicals, Synmac Chemicals Pvt. Ltd. (for export), MDI Chemicals, Vietnam and many more.



National/Societal Relevance

Dextrans are undesirable compounds of sugar cane. There is an economical and technical need to control dextran. Many countries have fixed the standard of dextran in sugar. Dextrasol is a need of sugar industry, which is a major industrial sector supporting agricultural economy. The production technique involves locally available raw materials and resources with no environmental load; hence it is highly economically viable.



IP Status

Patent Filed: 201811022544



Import Substitution

On the national scale Dextrasol has the potential of bringing cost saving of approximately 1000 Cr annually to the nation on an estimated crushing of 250 million tons of sugar cane. This indigenously produced Dextrasol helps in substantial saving of foreign exchange.



Export Potential

Novo Nordic and DuPont are the major players globally; however, Dextrasol is a formidable global competitor due to cost competitiveness thus have huge export potential.



Major Achievements (including awards)

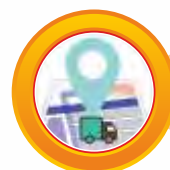
Taken over almost 30 % of the market share of dextranase in U.P. and Maharashtra.

Economical and Sustainable Solution for Waste Water Treatment



Unique Selling Point

- REYV is currently working on the implementation of optimized Waste Water Treatment Technology. REYV has designed a process for the development of 'Anaerobic Granulated Sludge (AGS)', 'Aerobic Biomass' as well as 'Biomass Growth Enhancement Formulations (BGEF)' for both anaerobic as well as aerobic processes.
- REYV Seed Biomass will support faster start of aerobic/anaerobic reactor. Its' AGS (of 1.5 -2.0mm size and more than 650 no of various bacteria) can withstand higher loading rate and has a capability to reduce higher COD/BOD load while giving better biogas yield in comparison to flocculent systems. This consortium is proven to treat waste water and the treated water can directly be used for irrigation purposes along with energy recovery.
- BGEFs have been developed keeping in view the nutritional requirement of the biomass to remain healthy and active (through continuous enhancement of MLVSS). These formulations have been developed to provide desired result in the lowest possible dosage.
- **Innovativeness:** The product AGS is highly economical since industrial effluent is used as a feed material.



Geographical Region Targeted

Western India, Punjab, NCR and later PAN India



Cost

- Biomass Seed Cultures: INR 2500-3000 for Pack size of 10L (Cost differs with different forms)
- BGEFs: INR 2500-5000 (Different pack sizes are available) (Products to be diluted in 100L)



Sold

9 sets of trial packs, LOI from Potential customers worth 2 Cr.



Product Positioning

B2B: Pepsico, Grasim Industries, Reliance Industries, Banas Dairy, GESCSL CETP Vatva, Transpek, Stagot Potatoes LLP. Municipal STPs, Industrial ETPs.



National/Societal Relevance

Waste management and sewage treatment is a part of public health and sanitation and is entrusted to the municipal government for execution. Presently, the systems are assuming larger importance due to population explosion in municipal areas, legal intervention, and emergence of newer technologies and rising public awareness towards cleanliness. Only 21% of the wastewater generated from domestic or sewage sources is treated in the country. It has also been estimated that around 60% of the effluent generated by the industries goes untreated into the ecosystem. Thus, there is an urgent need for efficient water resource management through enhanced water use efficiency and waste water recycling. Problem can be mitigated by adoption of cost effective eco-friendly technologies for waste water treatment.



IP Status

NA



Import Substitution

The present innovation offers substitution to both a) the available AGS products which are not only costly but also use artificial polymers in process of granulation and b) to the Import of engineered biomass (which is highly regulated / restricted).



Export Potential

Technology has potential for export. The company has started scouting for potential partners for creating offshore JV.



Major Achievements (including awards)

- Iconic Women Creating A Better World – WEF 2018.
- Success Story Award – IISF'2018.
- Finalist Hello Tomorrow Global Challenge-Paris 2019.
- Winner Integrate to Innovate Challenge 2018 – DIPP.
- Winner Swachh Bharat Grand Challenge 2018– DIPP.
- Winner YESSCALE Cleantech – 2018 Yes Bank.
- BIRAC BIG Grant – Rs. 35 Lakhs and BIRAC SPARSH Grant – Rs. 29 Lakhs.
- Villgro Incubation Grant – Rs. 20 Lakhs.
- Bootstrap – Rs. 84 Lakhs and Prize Money – 11 Lakhs.

Evergreen & Bioclean Liquid Washing Solutions for Fruits and Vegetables



Unique Selling Point

- The Company has developed liquid washing solutions for removing chemicals, pesticides, pathogens and other foreign materials from the surface of fruits and vegetables, resulting in their extended shelf-life and rendering them completely safe for consumption. The patented formulation is developed from natural, biodegradable food-grade materials with regulatory approvals.
- Products available in the market under the name “Evergreen Insta Veg and Fruit Wash” and “Bioclean Splash of Goodness”
- Innovativeness:** The product is odourless, colourless, tasteless, non-sticky, and non-oily, increases the shelf-life of agriculture produce by 2X, and has a near neutral pH (skin friendly). Also, the formulation does not change the taste of the fruit/vegetable, cleans it within a few minutes with no rewash required.



Geographical Region Targeted

- Initially to Maharashtra, Gujarat and Karnataka, later PAN India.
- The product has already reached out to customers all over India through e-commerce portals like Amazon and Qtrove.



Cost

INR 150/100 ml, INR 290/200ml, INR 750/500 ml, INR 1400/ 1L and INR 6500/5L



Sold

1000 litres of formulation till date



Product Positioning

Both B2B & B2C are targeted
The numbers of active B2B & B2C customers are over 10 & 1500 respectively.



National/Societal Relevance

In recent years, pesticides are used in excess to increase the yield in agricultural sector. In developing countries, it is estimated that Acute Pesticide Poisoning (APP) affects approx. 3 million people and accounts for 20,000 unintentional deaths per year. Moreover, the unhygienic handling of agricultural products introduces plant and human pathogens. These microorganisms induce perishability and reduced shelf-life of fruits and vegetables contributing to considerable commercial loss. The patented liquid formulation can substantially mitigate all these problems. API of the formulation is biosurfactant with antimicrobial activity which solubilises and removes pesticides with log reduction of bacteria significantly. The API in the formulation creates a thin coating on vegetables and fruits surface. The coating prevents the microbial attack and water loss substantially which increases the shelf life of the agriculture produce.



IP Status

- Patent Filed: 3322/DEL/2014
- Licensing case no.: 2015-LIC-0005



Import Substitution

The product offers a substitution of the imported Malaysian product named “Good Maid Bio Vege Wash”, sailing in Indian Market via e-commerce portal Amazon India.



Export Potential

The innovation has a potential role in the agro and food commodities internationally. The product has Green Cert approval accredited by National Accreditation Body (NAB), GoI, as per National Program for Organic Production (NPOP) which permits the export all over the world. The company is intended to export the said product with export channels/treaty.



Major Achievements (including awards)

- AIT-Swissnex National Award.
- TDB- Seed Fund.
- Backed and Approved by GreenCert, NPOP, APEDA, FDA (Maharashtra), FSSAI, HACCP, ISO22000:2005.

Mango Wine



Unique Selling Point

- An off-dry style white wine made from Alphonso mangoes.
- The mango pulp is treated with macerating enzymes at low temperature to produce juice which is further fermented using wine yeasts to produce wine. The pulpy mango is converted into a clear, fine and flavorful wine.
- Innovativeness: No equivalent product available in market.



Geographical Region Targeted

India: Mumbai, Delhi, Goa and Bangalore



Cost

INR 850



Sold

1500 bottles
(Quantity of each: 750ml)



Product Positioning

B2C (In Goa): Wine lovers, Foreign & domestic Tourists, Destination weddings, Corporate events, Airlines & Cruises and for Export.



National/Societal Relevance

A significant amount of mango fruit is harvested during the season. Most of the fruits which doesn't go to market is processed and made available in the form of canned pulp or frozen pulp. Though India is the second largest producer of fruits and vegetables in the world, commercial processing of these commodities is less than 2 per cent of production. The mango fruit and fruit pulp remain underutilized due to lack of knowledge or technology to convert this into a commercially valuable product with a long shelf-life. The mango wine industry can channelize the unutilized mango produce thereby helping the mango growers with an additional opportunity for business.



IP Status

NA



Import Substitution

No equivalent product is available in market.



Export Potential

The product has got export opportunities in Asian countries, Russia and UK. Few LOIs have been received for export.



Major Achievements (including awards)

Product has been taken from R&D to market.

Multi Deck Shaker



Unique Selling Point

- The innovation facilitates large scale Microbial Cultivation to treat epidemic containment in the fastest and cost effective manner.
- This is a Made in India product and one of its main components; Triple eccentric movement system is manufactured in house principally with the advanced CNC bending machines (TOYOKOY) and CNC turning Centre (Mazak). The machines have ensured that the movement can be run continuously for 365 days which further offers high productivity in Institutes and Industries where throughput is likely to have increased multi fold.
- **Innovativeness:** The movement system present in the innovation is different in principal as compared to the competitive products.



Geographical Region Targeted

PAN India



Cost

INR 16 Lakhs plus accessories 10-15% plus freight and GST will be extra.



Sold

150 units



Product Positioning

Product has already been supplied to ICAR, ICMR, CSIR Research Institutes, DBT Institutes, and Central Universities.



National/Societal Relevance

The innovation has applications in several fields like: a) Vaccine production, b) Agriculture, and c) Bio pharma Industries. Thus, addressing the National and societal Relevance.



IP Status

NA



Import Substitution

The products are totally indigenized and have resulted in saving of sustainable foreign exchange. Around INR 10 Cr. of foreign exchange have been saved by the company.



Export Potential

The product has been exported to Finland. Also, the company is taking efforts to identify overseas distributor and channelize sales through them in order to achieve foot hold in the foreign countries.



Major Achievements (including awards)

The product has acted as a major substitute and has helped the Research Institute and Industries in saving substantial financial resources.



Nitrifying and Denitrifying Bioreactor for Aquaculture



Unique Selling Point

- Integrated nitrifying and denitrifying bioreactor for Recirculating Aquaculture Systems (RAS) with a bacterial consortium that converts: a) Ammonia (NH_3) and ammonium (NH_4^+) to nitrite (NO_2), b) Nitrite to nitrate (NO_3), and c) Nitrate reduced to molecular nitrogen (N_2).
- Innovativeness:**
 - Nitrification and denitrification in same system while conventional systems require two reactors.
 - Maintains optimum levels of nitrogenous compounds: $\text{NH}_3 < 0.2\text{ppm}$, $\text{NO}_2 < 0.2\text{ppm}$ and $\text{NO}_3 < 1.16\text{ppm}$.
 - Operational at site within 2 – 3 days while conventional systems require 60 days for full activation.
 - Can be tailor made to customer requirements and available in three different salinity levels (0ppt, 15ppt, and 30ppt).



Geographical Region Targeted

West Bengal, Odisha, North Eastern States and Andhra Pradesh, Bangladesh, Indonesia, Vietnam, UAE, Egypt, Thailand, Myanmar, Philippines, South Korea, and Malaysia



Cost

Available on request



Sold

- 56 Units Installed (Old Product)
- 2 Pre-orders for new product with enhanced features

Product Positioning

- Indoor Grow outs: Large Scale Indoor tank-based facilities to grow high value species of shell fishes and fin fishes from small size to marketable size. (eg. Asian sea bass fish from a 5 gms fingerling to 1000 gms in about a years' time).
- Beachhead segment: new indoor grow out with operating conditions: Temperature: 23°C to 30°C , Salinity: 0 ppt or 30-35 ppt. Species: e.g. Flounder(hirame), L. Vannamei and Asian Sea Bass.
- Adjacent Markets: Indoor nursery in India (finfishes) and maturation system in India. (Crustaceans)



National/Societal Relevance

The underlying factor behind the problems facing the aquaculture industry in India is non-stable and poor water quality. This can be controlled by installing a RAS with minimum water exchange with the following advantages: a) Water dependence $< 90\%$, b) No seasonal factors influencing growth, c) Floods and Rainfall do not affect production, d) Significantly lower incidences of disease, e) Possible to secure far superior FCRs, reduce feed waste, f) Generally lower mortality, g) Site Flexibility (Farms can be located near markets), h) Traceability and bio-security, i) Domestication of alternative species, and j) Brooder stocking and development in controlled conditions.



IP Status

- Patented in India (No. 241648) and South East Asian Countries
- PCT application submitted in Thailand, Japan, Philippines, and Indonesia & South Korea.



Import Substitution

The estimated market for Bioreactor for RAS in India is estimated at USD 420 million. Currently, there are no manufacturers in India. The innovation has a bacterial consortium from Indian water and is more suitable for Indian Environment and thus can offer a substitution to the present imports from Europe, Israel etc.



Export Potential

According to an independent evaluation, the water treatment market for RAS is estimated to grow to \$13.3 billion by the year 2030. The product has export potential to tropical countries/countries where operations are undertaken at temperature of $25-35^\circ\text{C}$. The regions are Middle East and North Africa, South East Asia and countries in the neighbourhood like Bangladesh.



Major Achievements (including awards)

- Chosen in Accelerate Andhra Pradesh (Xlr8AP) Program organized by Govt of AP with technical inputs from University of Texas, Austin.
- Chosen in Global Cleantech Innovation Program (GCIP) by UNIDO.



Testimonial

“BIRAC has been promoting Science & Technology entrepreneurship in India by leading the pathways for some of most successful innovations, enabling and accelerating their transition from "Lab to Market". The infrastructure that BIRAC has created and the momentum with which it is moving the needle is unprecedented. It has laid the foundation for India to become a global bio-innovation hub, capable of solving some of the most complex issues faced by the humanity today. For us at Social Alpha, BIRAC has been an immensely supportive partner in designing and deploying new pathbreaking platforms and it has been a privilege to work with their extremely capable and professional team. ”



Manoj Kumar, Founder – Social Alpha
Head – Innovation and Entrepreneurship, Tata Trusts

Testimonial

“The BIRAC ecosystem has been a game changer for biorelated entrepreneurship activity at IIT Kanpur. Considering that Biology as a discipline was introduced to IIT Kanpur only in 2001, it was only because of constant patronage from BIRAC's ecosystem that today IIT Kanpur has one of the most sophisticated and well-rounded MedTech Device innovation program. ”



Dr. Amitabha Bandyopadhyay
Associate Professor & In-charge Bio-Incubator Facility
IIT - Kanpur

Testimonial

“ BIRAC is a unique platform, which expedites not only the interactions between innovators and implementers but also identifies the gaps and facilitates the consortium synthesis with right partners. The Team BIRAC has earned the credibility, even in the global scenario; and the international partners are ready to work with Indian innovators under the umbrella of BIRAC. The professional environment of working ensures the Lab to Market translation and commercialization of technologies. Every forum has identified that there is communication gap between industry and academia; BIRAC took this challenge and in a very short time created a successful story of 125+ products/technologies. BIRAC's contribution to science is highly appreciated. ”



Dr. Hemant Purohit
Chief Scientist & Head
CSIR - NEERI

Testimonial

“ Indian Biotech Sector Growth – Nationally Viable & Globally Visible

In the mid 80's when quantum jump developments occurred in Information Technology (IT), the introduction of biotechnology (BT) was looked as a 'kid' and there was also skeptical whether BT could ever make even incremental advancements. 'A paradigm shift of supporting innovative nationally relevant ideas / products / processes for further development and commercialization by empowering and enabling the biotech innovation ecosystem' is the achievement of DBT's BIRAC programs. As a mentor and technical expert of the ecosystem stakeholder, I can see a quite promising future for the Indian Biotech Sector while implementing 'bench to bed-side' applications and 'Lab-to-Market' commercialization with national viability and global visibility.”



Dr. M. Balasubramanyam
Dean of Research Studies & Senior Scientist
Madras Diabetes Research Foundation (MDRF)

Testimonial

“ Jeevtronics journey in medical devices started due to BIRAC and it's ecosystem. Without this we wouldn't have accomplished our goals. Starting from the BIG program in 2013, we have been tapping into BIRAC's ecosystem in various ways with great results. Access to funding, various workshops held through the incubators, conferences, national and international connects to name just a few....have immensely helped us in our journey. This is truly one of the most well planned entrepreneurial ecosystems worldwide with unparalleled stakeholder support that a startup could get in it's journey. Even after graduating from it's grant program, we get support through its various initiatives. We are grateful to the entire BIRAC team for that. Guidance on various fronts including prototyping, testing, IP, national and international regulations, sponsored trips to international conferences have helped startups like us tremendously. Access to various experts from around the globe- from Europe to Africa to far East will help propel the venture further. ”



**Aniruddha Atre, Co-founder
Jeevtronics Pvt. Ltd.**

Testimonial

“ It is really amazing to witness the paradigm shift in the Indian healthcare ecosystem in recent past, and all the credit goes to BIRAC. BIRAC, with its vision and proactive measures to promote healthcare startups have literally revolutionized the medical device sector in India. Over the years many industries have been supported by BIRAC with commercialization of more than 125 products. I am also pleased to acknowledge that majority of them are by the young minds which BIRAC always believes are the bright future of India. I am happy to be part of this BIRAC family and extend my services to nurture the future of medical industry in India. ”



**Prof. (Dr.) Amit Mehndiratta
Professor, Biomedical Engineering
IIT-Delhi & AIIMS, New Delhi**

Asprogrow: Poultry Feed Supplement



Unique Selling Point

- The company manufactures silkworm pupa oil (enriched with Omega 3 Fatty Acids) through a clean and green technology. The de-oiled cake after the extraction of the oil is a rich source of not less than 65% of Silk protein.
- Silkworm pupa comprises all the essential amino acids that satisfy the FAO/WHO/UNU recommendation. It is an affordable and accessible source of protein which can be used as a raw material for both aqua and poultry industries.
- Asprogrow is a synergistic combination of herbal mixture, de-oiled pupa cake and calcium linolate for growth promotion in poultry. This combination induces faster growth, feed intake, weight gain and FCR.
- **Innovativeness:** Silk protein is completely sterile and much superior to the existing sources like soya protein in terms of the amino acid profile and its quality.



Geographical Region Targeted

Karnataka, Tamilnadu, Maharashtra, Kerala, Andhra Pradesh, Bangladesh, Japan etc.



Cost

INR 292/kg



Sold

500 kg



Product Positioning

- B2B: Poultry feed manufacturers
- B2C: Poultry broiler, breeder and egg layer farms



National/Societal Relevance

Silkworm pupa is discarded as a waste from silk reeling industries. It is a rich source of protein which is consumed as a delicacy in Japan, China etc. It is considered to have medicinal properties as per the traditional Chinese Medicine.



IP Status

2 Patents filed: 1) 201941001262 and 2) 201941001259



Import Substitution

Substitutes other sources of Omega 3 Fatty acids like fish, krill, flaxseed etc.



Export Potential

Market potential in Bangladesh, Japan, China and European markets.



Major Achievements (including awards)

- Awarded (under Waste Beneficiation Category) in the Global Cleantech Award conducted by UNIDO at Los Angeles, USA.
- One of the Top Ten Winners- Scale up Companies across India in the LevelNxt program conducted by FICCI, PWC and CNBC.
- Winners in the BIG PITCH competition conducted by 1 Crowd and RBL Bank.
- In House R&D unit recognized by DSIR-Gol and ISO 9001:2015 certified.
- Recipient of BIPP Grant from BIRAC and Idea2PoC grant from GoK.
- Received Term Loan from SBI under the CGTMSE scheme.

Florafoam – A Biodegradable Packaging Material

Unique Selling Point

- Florafoam - A high-performing, mouldable and world's first biodegradable alternative to Earth's fifth biggest pollutant- Styrofoam (Expanded Polystyrene- toxic and single-used). Florafoam is made from temple-flowers and farm-stubble, having a \$17.9 B market. It is a durable material that is highly customizable to any shape, size and strength and is home-compostable. Moreover, it is non-flammable.
- **Innovativeness:** The product is made from waste (temple-flowers, farm stubble in Asia) and thus is 27% cheaper than existing EPS. Daily 4.7 tons of waste is converted.

Geographical Region Targeted

Uttar Pradesh & Haryana for Manufacturing units..

Cost

For instance: INR 8.2 (Price of protective packaging of a ceiling fan motor). Price depends on the volumetric weight.

Sold

Preorders-1.4 Lakh pieces per month for 1 year

Product Positioning

- B2B: 2 MOUs have been signed with major Electrical appliance companies in Southern Asia to make eco-friendly protective packaging for household appliances.
- The product will also cater to construction and automotive industries.

National/Societal Relevance

Single-use Plastic & thermocol are banned in Indian states like Maharashtra which has highly augmented the demand for an eco-friendly substitute for packaging. Styrofoam holds 89% share in world's packaging industry. However, it is toxic and there is no technology to recycle EPS-It is either dumped in landfills or burnt. It is made from cancer-causing Benzene & Styrene and its Production is toxic & energy intensive, causing severe greenhouse emissions. On the other side, Showering flowers (8 Million tonnes annually) at temples are discarded into River Ganges to respect their sanctity. Sadly, these pesticide-laden flowers-create havoc in the fragile ecosphere of the river. An environment friendly solution for temple-flower disposal that respects its sacred values is directly required.

IP Status

- Trademarks applied.
- 4 US patents to be applied by December'19

Import Substitution

The company plans to penetrate the market through protective packaging for household appliances making the Serviceable Available market size 8.3B\$. In terms of raw-material availability, India is the world's 2nd largest paddy producer (2 tons of rice straw per acre). Florafoam have the potential to displace the widely used hazardous expanded polystyrene.

Export Potential

The packaging industry is actively trying to find a green replacement for styrofoam (which holds 89% share in world's \$17.9 B packaging industry and is growing at 6.2% annually) and several governments are banning its use. Since Florafoam is made from waste temple-flowers it is 27% cheaper than Styrofoam. Thus the product has huge export potential.

Major Achievements (including awards)

- Alquity Transforming Lives Award 2019, UK.
- Takeda Best Entrepreneur Award 2019, University of Tokyo.
- United Nations Young Leader for sustainable Developmental Goals 2018.
- Bill & Melinda Gates Goalkeeper 2018.
- United Nations Momentum of Change Award, Poland 2018.
- GSG Millennial Global Honors 2018.
- Forbes 30 under 30 2018.
- Draper Richards Kaplan fellow 2018 and Unilever Young Entrepreneur award 2017& Won IIGP 2019.
- Wharton India Economic Forum People's choice Award 2017.
- Investments & Grants raised – 1 Million \$.



Growthmin Aqua:
Silk Protein Enriched Aqua Feed Supplement



De-oiled Silkworm pupa cake



Unique Selling Point

- The company manufactures silkworm pupa oil (enriched with Omega 3 Fatty Acids) through a clean and green technology. The de-oiled cake after the extraction of the oil is a rich source of not less than 65% of Silk protein.
- Silkworm pupa comprises all the essential amino acids that satisfy the FAO/WHO/UNU recommendation. It is an affordable and accessible source of protein which can be used as a raw material for both aqua and poultry industries.
- Growthmin Aqua is enriched with the de-oiled pupa cake and combination of vitamins, herbs and minerals which helps in accelerating healthy growth and improves the feed conversion ratio. It also prevents the mineral deficiencies in the fishes and ensures healthy muscle growth. The addition of herbal mixture improves the immunity, body resistance and antioxidant activity.
- **Innovativeness:** Silk protein is completely sterile and much superior to the existing sources like soya protein in terms of the amino acid profile and its quality.



Geographical Region Targeted

Karnataka, Tamilnadu, Maharashtra, Kerala, Andhra Pradesh, Bangladesh, Japan etc.



Cost

INR 70/kg



Sold

35 Tons



Product Positioning

- B2B: Aqua feed manufacturers
- B2C: Aquaculture farms etc
- In the aquaculture belt of Bhimavaram and other regions.



National/Societal Relevance

- Silkworm pupa is discarded as a waste from silk reeling industries. It is a rich source of protein which is consumed as a delicacy in Japan, China etc. It is considered to have medicinal properties as per the Traditional Chinese Medicine.



IP Status

2 Patents filed: 1) 201941001262 and 2) 201941001259



Import Substitution

Substitutes other sources of Omega 3 Fatty acids like fish, krill, flaxseed etc.



Export Potential

Market potential in Bangladesh, Japan, China and European markets.



Major Achievements (including awards)

- Awarded (under Waste Beneficiation Category) in the Global Cleantech Award conducted by UNIDO at Los Angeles, USA.
- One of the Top Ten Winners- Scale up Companies across India in the LevelNxt program conducted by FICCI, PWC and CNBC.
- Winners in the BIG PITCH competition conducted by 1 Crowd and RBL Bank.
- In House R&D unit recognized by DSIR-Goland ISO 9001:2015 certified.
- Recipient of BIPP Grant from BIRAC and Idea2PoC grant from GoK.
- Received Term Loan from SBI under the CGTMSE scheme.

Ocean Chew for Pet Animals



Fish Tail



Fish Bone



Fish Fin



Unique Selling Point

- A dog chew has been developed from by-products of fishery industry. Fish bones, fish tails and fins, which are discarded or sold as low value waste are processed into a high value (rich in highly digestible protein) dog chew. These dog chews are a high nutritive alternative to the existing rawhide dog chews.
- **Innovativeness:** It is an organic, chemical free product (with no added preservatives, colours, antioxidants and other harmful chemicals) and has high palatability.



Geographical Region Targeted

Across the Globe



Cost

Regular size: INR100/ Chew stick
Large size: INR 150/ Chew stick
Jumbo: INR 300/ Chew stick
(Cost is half of the MRP for distributors and further can be discussed for bulk supply to foreign market)



Sold

Appx.2000 units



Product Positioning

- Pet Food distribution network.
- Direct online sale to pet owners.



Import Substitution

No equivalent product is available in the pet food category.



National/Societal Relevance

Marine wastes which are discarded and disposed openly, decay and rot on the Indian shores leading to environmental pollution. Value addition of these through processing it into dog chew may generate carbon foot print.



Export Potential

The product has very high export potential in US, Canada and European Market



IP Status

Ocean Chew brand is registered



Major Achievements (including awards)

Received Best Product Award from BIRAC in Green Technology category in 2013.

Ricela & Gamma Oryzanol:
Value Added Rice Bran Derivatives



Unique Selling Point

- Ricela cattle feed supplement (using Lysolecithi) and Gamma Oryzanol human food supplement are the byproducts of rice bran oil refining.
- Ricela is helpful in fulfilling the energy demand, increases the milk production & improves health of the cattle. While Gamma Oryzanol has applications as an antioxidant, cholesterol management agent, active ingredient in cosmetic industry and in the making ferulic acid and natural vanillin.
- **Innovativeness:** Gamma Oryzanol is manufactured first time in the country with technological support from CSIR research institutes.



Geographical Region Targeted

North and Central India, Europe and East Asia



Cost

- Ricela: INR 40/kg
- Gamma Oryzanol bulk powder: INR 3500/kg
- Gamma Oryzanol Capsulation form: Depends upon ingredients and customer specifications.



Sold

- Ricela: approx. 40,500 Kgs.
- Gamma Oryzanol: 4752 boxes (60 capsules each) out of pre order of 30 lakh capsules



Product Positioning

- Gamma Oryzanol: B2B, supplied in encapsulated and in API form for domestic market and in bulk form for export purpose.
- Ricela: To feed supplement manufacturers



National/Societal Relevance

The products have the potential to improve the realization of the paddy growers without burdening the cost of production of rice and will promote the Secondary Agriculture. Apart from improving health index these innovations will further provide new job opportunities.



IP Status

NA



Import Substitution

Gamma Oryzanol can be used as an alternative to statins for domestic market



Export Potential

Order of 100 kgs of Gamma Oryzanol have been received from Export customer



Major Achievements (including awards)

NA

Silkworm Pupa Oil: Source of Omega 3 Fatty Acids



Unique Selling Point

- It is pharmaceutical grade pupa oil which is rich in not less than 40% Omega 3 Fatty Acid.
- The company's prime focus is on the production of Omega 3 Fatty Acids from Silkworm Pupae which is one of the richest and cheapest sources when compared to the marine sources.
- The company has established a state of the art facility of Supercritical Fluid Extraction for the extraction of novel components from various sources which has high value therapeutic, nutraceutical and cosmeceutical applications.
- **Innovativeness:** A novel cost effective process producing a completely sterile, chemical/solvent free and odourless pupa oil for both human and animal applications.



Geographical Region Targeted

Karnataka, Tamilnadu, Maharashtra, Kerala, Andhra Pradesh, Bangladesh, Japan etc.



Cost

INR 1500/kg



Sold

200 Kg



Product Positioning

- B2B: Animal and pet feed industries, human nutraceutical industries.
- B2C: Poultry broiler, breeder and egg layer farms, Cattle farms, Aquaculture farms etc.



National/Societal Relevance

- India is the second largest producer of silk in the world. Sericulture is practiced in 52,360 villages in India and provides employment opportunity to about 7.6 million people in India.
- India produces around 33,000 MT of raw silk and 80% of this raw silk comprises of Silkworm pupae (26,000 MT) which is cheaply discarded due to its bad odour and becomes an environmental hazard.
- Silkworm pupa waste if effectively utilized through this technology, it can completely meet the Omega-3-fatty acid requirement of 78 lakhs children or 26 lakhs pregnant women/lactating mothers as per the RDA.
- Additionally, the cake discharged after the extraction of Omega-3-fatty acid is rich in protein accounting for 65% of the total cake discharged. This further creates additional revenue generation model for all the sericulture farmers.



IP Status

2 Patents filed: 1) 201941001262 and 2) 201941001259



Import Substitution

Substitutes other sources of Omega 3 Fatty acids like fish, krill, flaxseed etc.



Export Potential

Market potential in Bangladesh, Japan, China and European markets.



Major Achievements (including awards)

- Awarded (under Waste Beneficiation Category) in the Global Cleantech Award conducted by UNIDO at Los Angeles, USA.
- One of the Top Ten Winners- Scale up Companies across India in the LevelNxt program conducted by FICCI, PWC and CNBC.
- Winners in the BIG PITCH competition conducted by 1 Crowd and RBL Bank.
- In House R&D unit recognized by DSIR-Gol.
- Recipient of BIPP Grant from BIRAC and Idea2PoC grant from GoK.
- Received Term Loan from SBI under the CGTMSE scheme.
- ISO 9001:2015 certified company.

YeggMore Omega- Avian Feed Supplement



Unique Selling Point

- Premium quality poultry feed supplement to produce Designer Eggs enriched with Omega 3 Fatty acids. It comprises of a unique combination of Omega 3 Fatty Acids from Silkworm pupae, carotenoids, herbal mixtures and chelated micro and macro nutrients in their most bioavailable form.
- The formulation of YeggMore Omega comprises a unique blend of Calcium linolate, Zinc chelate, herbs and micro and macro nutrients which in synergy enhances the omega 3 content in egg, increases calcium absorption, increases egg production and also reduces egg breakage.
- It has enhances levels of carotenoids, immunomodulators and lower the level of cholesterol.
- **Innovativeness:** It's presence in the feed enrich eggs with essential nutrients and omega 3 fatty acids from 40 mg to 240 mg, which is much superior to the existing Designer Eggs in the market.



Geographical Region Targeted

Karnataka, Tamilnadu, Maharashtra, Kerala, Andhra Pradesh, Bangladesh, Japan etc.



Cost

INR 260/kg



Sold

15 tons



Product Positioning

- B2B: Poultry feed manufacturers.
- B2C: Egg layer farms.
- The product has been trial tested in various poultry farms in different regions of Karnataka and Tamilnadu.



National/Societal Relevance

- Omega-3 fatty acids are naturally found in the oil of cold-water fish, such as mackerel, salmon, sardines, anchovies and tuna. In general, marine organisms have been the primary source of Omega 3 Fatty acids, however, these sources are tending to be limiting in terms of cost, supply, purity (marine sources often report high levels of heavy metals e.g. mercury and other contaminants (dioxins, chlorobenzenes, etc.).
- Table eggs enriched with omega 3 fatty acid is gaining popularity as nutritional eggs. Current market includes eggs enriched with omega 3 from marine sources.
- The technology produces affordable and accessible Table Eggs enriched with Omega 3 fatty acid from silkworm pupae and is at least 40% cheaper and one of the richest sources.



IP Status

2 Patents filed: 1) 201941001262 and 2) 201941001259



Import Substitution

Substitutes other sources of Omega 3 Fatty acids like fish, krill, flaxseed etc.



Export Potential

Market potential in Bangladesh, Japan, China and European markets.



Major Achievements (including awards)

- Global Award (under Waste Beneficiation Category) in the Global Cleantech Award conducted by UNIDO at Los Angeles, USA.
- One of the Top Ten Winners- Scale up Companies across India in the LevelNxt program conducted by FICCI, PWC and CNBC.
- Winners in the BIG PITCH competition conducted by 1 Crowd and RBL Bank.
- In House R&D unit recognized by DSIR-Gol.
- Recipient of BIPP Grant from BIRAC and Idea2PoC grant from GoK.
- Received Term Loan from SBI under the CGTMSE scheme.
- ISO 9001:2015 certified company.

Testimonial

“ BIRAC is the leading organization in India connecting academic experts from different institutions with industry, empowering innovation ecosystem for novel commercially viable products in a regulated pathway. The well-organized diverse programs of BIRAC are leading to greater success of translation of laboratory research. It has generated a tremendous enthusiasm among the young scientists to choose the path of entrepreneurship with greater confidence and leadership. With the vision and mission of BIRAC after information technology (IT), India will become a global leader and hub of Biotechnology applications transforming human life in near future.”



**Dr. A. K. Dinda, Professor
Department of Pathology
AIIMS, New Delhi**

Testimonial

“ We wouldn't have dared to take this risk at the prime stage of our lives, without the support from very cohesive and well - integrated start-up ecosystem that have been built in India. Specifically, we are thankful to BIRAC for the support provided for our PoC validation and up scaling the technology. With this support we are all set to commercialise our products soon. Thank You BIRAC - for believing in us and supporting us in our entrepreneurial journey!! ”



**Dr. Vanita Prasad, Founder & Director
REVY Environmental Solutions Pvt. Ltd.**

Testimonial

“ Building an ecosystem is a tall order, and when it pertains to innovation in a country as diverse as India, the challenges are multiplicative and manifold. The Global Bio-India represents an amalgamation of all the efforts that BIRAC has put into addressing and successfully surmounting those challenges. Now that a culture of life sciences innovation has been established in the country, the future will depend on how well the different stakeholders are tied into a formal framework, that still allows flexibility to foster creativity in solutions and engagement models. I wish BIRAC all the success in leading the next phase of innovation ! ”



Dr. Ambuj Chaturvedi, Head R&D
Medtronic

Testimonial

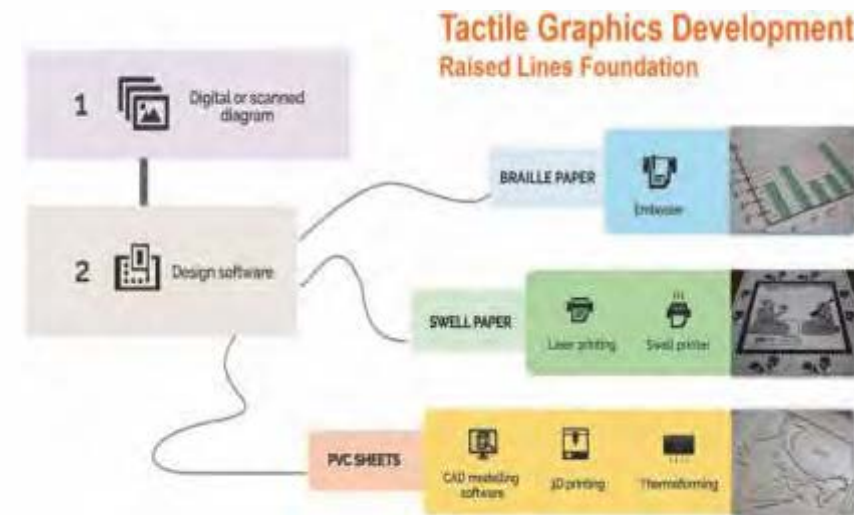
“ I am delighted to learn that BIRAC is hosting the Global Bio-India 2019 meet, in which all stakeholders in the rapidly emerging eco system of Indian Biotechnology are participating. From bench to bedside is no longer just a cliché for DBT. The Lab2Market catalogue featuring BIRAC supported commercialized 125+ products / technologies speaks for itself. We are no longer following the west, not even leap frogging, but pole vaulting. Indian Biotechnology will no longer want to achieve world class. The world will want to achieve India class! It has been my privilege to be associated with BIRAC evaluating and mentoring outstanding proposals. ”



Dr. K. Ganapathy

Director, Apollo Telemedicine Networking Foundation - Past President, Telemedicine Society of India
Director, Apollo Tele Health Services - Former Secretary and Past President Neurological Society of India
Emeritus Professor Tamilnadu Dr MGR Medical University - Past President, Indian Society for Stereotactic & Functional Neurosurgery

Affordable Tactile Graphics for the Visually Impaired



Unique Selling Point

- The Company caters end to end design and production of affordable tactile graphics books. Tactile Graphics are images that consist of raised lines and textures that can be used by people with visual impairment to understand graphical information using their sense of touch. The Company produces such diagrams using embossing or other technologies on physical medium like swell paper or PVC sheets. This technology is very useful in various fields of education where textual content in Braille can be made more comprehensible using tactile diagrams.
- Innovativeness:** The Company is the only one to produce tactile books in India on a large scale.

Geographical Region Targeted

Initially, India later to international market

Cost

- The cost per book is calculated based on the number of diagrams in a book.
- INR. 600 : For a book with 20 diagrams (Cost includes raw materials, bookbinding, braille content printing, mould making, salary, overheads and margins)

Sold

Number of books sold: 4000+
Number of independent diagrams sold : 800

Product Positioning

- End Users: Students from primary to higher education
- Direct Customers:
 - NCERT, State boards, SSA (MHRD)
 - Working organizations and Training centres for VI
 - Braille presses
 - Special and inclusive schools
 - Corporate and public CSRs donors
 - Individual beneficiaries under schemes like ADIP, IEDSS, etc.
 - Museums and public bodies

National/Societal Relevance

In the current scenario, a typical textbook that is available to a visually impaired student consists of only text made accessible using Braille while all the diagrams and pictures are removed. The overall impact is that very few visually impaired children in India (as well as in other developing countries) are able to pursue STEM subjects like Science, Maths in school where structures, illustrations, graphs, maps are necessary for conceptual understanding. This limits the opportunities for them in most of the new age jobs. Therefore, a scalable method of producing tactile graphics becomes essential to provide quality and equal educational resources to students with VI.

IP Status

The books have content copyright but IP is not necessary.

Import Substitution

The books/diagrams available internationally start from 1.5 USD per diagram. Because of this exorbitant cost, currently, no organisation is importing diagrams from outside. Therefore, such resources are rarely available in India. Also, every state has their own curriculum in their own local language. Such customization options are also not available in the books available internationally.

Export Potential

According to WHO report on global data on visual impairment (2010), estimated number of persons with visual impairment in Africa, Eastern Mediterranean, South East Asian and Western Pacific countries is 168 million. Roughly 15 % of this population would be school going population. It means there are approximately 24 million global consumers of tactile diagrams (excluding US and Europe).

Major Achievements (including awards)

- 1,00,000+ tactile diagrams produced , 4000+ tactile books produced and delivered & designed 1000+ unique diagrams.
- 28+ titles available & 4 upcoming next month.
- Provided books to 50+ schools and institutions.
- Around 2 Cr. from MIEY, Govt. of India for setting and scaling up and also development of books.
- BIRAC-Social Alpha Quest for Assistive Technologies.

Annie: Self-learning Braille Device



Unique Selling Point

- A device which enables user to self-learn Braille in a fun and gamified manner. It is a patent pending connecting device; allowing special educators to focus on multiple students at the same time, easy tracking of student's progress (analytics) and downloading of a new content by seamlessly integrating with the ecosystem.
- All the hardware modules of the device are tailored to teach Braille along with interactive content. The interactive content is an amalgamation of Braille and audio thus bringing the best of both worlds. The analytics suite allows for scheduling of tests and lessons and also enables teachers to give homework. The product introduced first time digital Braille games; in single player, multiplayer and multiplayer co-op modes with challenges, lessons and exercises.
- Innovativeness:** The product can be used by the beginners having no prior knowledge of Braille as compared to the other competitive products where the user should be Braille literate.



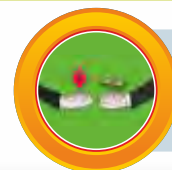
Geographical Region Targeted

PAN India, UK, USA, South Africa, Canada and UAE.



Cost

- Developing Countries-** A smart class is planned to be established consisting of Annie devices, necessary infrastructure, relevant content (with localisation) and dashboards for sighted stakeholders For a strength of 20 students, Cost of a smart class: INR 9 Lakh
- Developed Countries-** Onetime cost model with an annual recurring cost for unlimited access to content and the entire analytics suite. Cost: \$940 + \$150 (INR 65,000 one time + 10,000 /year recurring).



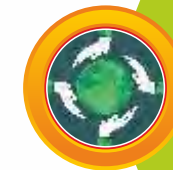
Sold

105 devices



Product Positioning

- Users-Early learners (K-5, ages 5-10)
- Buyers-B2G: District Administrators, State Project Directors and other senior government officials. And B2B:CSR Companies.



National/Societal Relevance

Braille illiteracy is a huge hurdle for the visually impaired individuals around the globe. The Company aims to pull up the braille literacy numbers by removing the biggest bottleneck – the lack of personal attention that is ideally provided by teachers. A device which accelerates the braille learning process itself and provides a self-learning environment will bridge the gap between opportunities available for the sighted and the visually impaired. We envision a world where education becomes accessible for the blind as it is for the sighted ones.



IP Status

Provisional Patent Filed: 201841006427



Import Substitution

Annie is also a one of its kind product across the globe.



Export Potential

Annie is a global product with demands already coming in from the USA, Canada, UK, South Africa, South Korea, Japan, and UAE among others. There is very high export potential and the introduction of a few major languages on Annie will unlock further multiple geographies for export.



Major Achievements (including awards)

- Winner at London Acumen Pitch Event.
- Top 10 social startups at the Nasscom Social Innovation Forum.
- Winner of Infocom IFLA award 2018.
- Winner, ASME iShow India & Global finalist 2018.
- Winner of MeitY- NasscomStartup Women Entrepreneur Awards 2019.
- Winners of BIRAC-Social Alpha Quest for Assistive Technologies.
- Investments: First round of funding- 1.3 crores & Second round of funding- 2.1 crores.

Developing Fortified Bakery and Confectionery Products Using Indigenous Raw Material (Mandia)



Unique Selling Point

- The company aims to create a food system where conventional foods and beverages are linked to natural indigenous raw material based fortification. The foods hence produced would be naturally enhanced, free of harmful chemicals and preservatives, and would meet the nutritional balance of the human system.
- Innovativeness:** Use of unique enzyme concoctions using amylases, proteases for processes improvement and to minimize preservatives and synthetic chemical usage like potassium bromate, potassium iodate, which is carcinogenic for human consumption.
- Providing professional training to tribal students of Odisha in bakery manufacturing, free of cost, under the program Kalinga Khadya Shiksha.
- Providing products like nutria bars and crackers along with nutritious meals with higher nutrition potential to the market at a subsidized price as part of the malnutrition alleviation strategy of the country



Geographical Region Targeted

Currently, Bhubaneswar and Cuttack, then to Sambalpur, Berhampur, Bhadrak, Puri, etc. (Odisha). Later Patna, Chattisgarh, Ahmedabad, Kolkata, Siliguri, Guwahati, Gangtok and Hyderabad and lastly PAN India



Cost

INR 2.5 -1000 (Depending on the type of products)



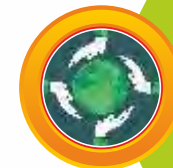
Sold

Selling 1.20 lakh units/month



Product Positioning

B2B: Various institutions, government agencies, schools, residential hostels, institutional food courts, cafeteria, etc.



National/Societal Relevance

Krea, firstly targets malnutrition alleviation through "Missions Millet" program initiated by the Government of Odisha under India. This approach helps the company to create dense nutrition products for food for defense, disaster management, to name a few. Secondly, through the Kalinga Khadya Shiksha, Krea aims to skill and empower the tribal population and making them skilled assets of the industry.



IP Status

NA



Import Substitution

NA



Export Potential

Our production facilities are operated under strict hygienic conditions with all staff trained in safe food handling. Our bigger vision is to comply with certifications include HACCP, ISO 22000:2005 and BRC Global Standard for Food Safety to serve the consumers in a Pan-India and Pan-Asia approach. Thus, the impact that Krea could create using its varied nutritive and safe portfolio is immense and has an impetus for export.



Major Achievements (including awards)

- Krea has been on the receiving end of productive support for its innovation and commercial potential, the company has been supported at an early stage by Development Commissioner - Ministry of Small and Medium Enterprises (DC-MSME) Government of India through KIIT-Technology Business Incubator (KIIT-TBI), KIIT University, Bhubaneswar.
- Various funding agencies across the country namely BIG Program, BIRAC Scheme, BIRAC Seed fund, DBT, Start-up Odisha, Start-up India, MSME, Government of India, NSTEDB, DST, Government of India
- The company has recently been funded by one of the premier PSU of the country, Indian Oil Corporation Limited, as part of its Start-Up Fund.

EzySpit - Empowering Sustainability



Unique Selling Point

- Spitting & liquid waste is one of the growing concerns of sanitation issues around the world. The Company has developed an innovative solution, not just to curb the menace of paan or tobacco spits but also the rising deaths due to communicable diseases like Tuberculosis (TB) & Swine Flu. Similarly organic liquid waste is mostly disposed in sewages or dumped in open areas which causes Air, water & land pollution.
- The Company has developed the World's first spit pack for TB, Swine flu patients & Paan Consumers etc, liquid disposal bin & vomit bags
- The innovation solidifies the spittle/liquid/vomit & converts it into a material in 10 sec. Made up of bio-degradable material (food grade & Environmental Protection Agency verified) the bag after use gets converted into hybrid fertiliser. The packaging used is compostable.
- Innovativeness:** The product is first of its kind.



Geographical Region Targeted

India, Hong Kong, US, and Russia.



Cost

- Spit Pack (EzySpit) : INR 5
- Vomit Bags (EzyVomit) : INR 20
- Ezy Liquid disposal bin : INR 99 (it will generate 20 kg of fertilizer from organic liquid waste)



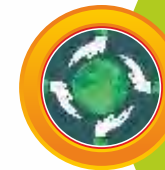
Sold

12200871 units



Product Positioning

Reliance Jio World, Aditya Birla Group, Hong Kong Government, Fortis hospital group and discussing with Tata hospital, Mumbai & central railway.



National/Societal Relevance

- The innovation will help in saving time, energy and money spent on disposal of liquid waste.
- It will also help prevent the spread of virus and bacteria. This is an innovative product with no competition. Its applicability is multiple; hence it will have fast growing demand. It will reap dividends , give employment and help in cleanliness and protection of environment, which in turn will also save millions of liters of water used to clean the public places



IP Status

- Formula Patent No: 201921019660
- Copyright Registration no : L-76768/2018
- Design Patents: 307026 and 305089
- Trademark Registry No : 3837684



Import Substitution

No equivalent product is available in the market.



Export Potential

EzySpit has worldwide market. There are 21 countries in which tobacco chewing is it common habit. Tobacco chewing generates lot of spit and it spoils the place. Since everybody wants to protect their country from these entire problems.Hence the export potential is high.



Major Achievements (including awards)

- Awarded by Forbes Asia as well as by Forbes India
- REX Karmaveer Global Fellowship and Karmaveer Chakra award 2019 instituted by iCONGO & United Nations.
- Awarded "Smart Startup of the year 2019" by ISGF (India Smart Grid Forum.
- Awarded by Maharashtra government as " Innovation of the year ".
- Recognized as "Nagpur Heroes 2019" by Times of India.

Flexmo: All terrain, Energy Efficient Crutches



Unique Selling Point

- All Terrain, Self-Standing Crutches (Axillary and Elbow) which can be used on wet and uneven surfaces such as wet tiles, mud and snow without slipping. It is energy efficient and will not make the user tired even after a long distance walk.
- **Innovativeness:** A unique product that is self-standing, energy efficient and all terrain at the same time.



Geographical Region Targeted

Worldwide, mainly developing countries.



Cost

NR 2999



Sold

48 units, Pre-Orders: 700



Product Positioning

B2C: Amputees, Polio patients, Paraplegics, Elderly age people B2B: NGOs, Hospitals (with Ortho & Physiotherapy Dept.)



National/Societal Relevance

Developing countries especially India has 5 times more people with mobility disability. These people suffer from poor quality of life as the basic crutches available does not properly solve the problem of walking and the people get tired after walking for a short distance. Therefore, by equipping such people with the present innovation which is energy efficient and all terrain crutches; they shall be empowered with better productivity and better quality of life.



IP Status

Patent Filed: 201841004533 (In Process) PCT Filed: PCT/IN2019/050093 (In Process) Design Patent Granted: 319106-001



Import Substitution

The innovation does not replace the imported products, It is a superior value-added product.



Export Potential

Premium version is being developed for Export. Outside India, there is approximately 2.5Bn USD worth of Market which is currently being serviced by cheap Chinese products.



Major Achievements (including awards)

- One of the Winners of BIRAC-Social Alpha Quest.
- Start-up Oasis (Awarded for Best Social Impact Entrepreneur).
- IRD IIT-D Project Grant.
- Pfizer Innovation Award.
- Korea K-Startup Challenge - Top 80 Teams among 1500 global teams invited to come to Korea with a support of 10000USD for Incubation in Korea.
- BIRAC BIG Grantee & DSIR Prism Grantee.

Kibo XS: Multilingual Reading And Learning Companion For Blind And Learning-Disabled



Unique Selling Point

- Kibo XS is the World's first intelligent personalized Scanning and Reading companion for the print and learning-disabled. It helps to read printed as well as written content across multiple Indian and overseas languages in real-time via audio and is compatible with both mobile and web, making it suitable for both individual and corporate use. It can download scanned documents in editable unicode formats (doc, docx, txt, pdf), translate text across 100+ languages, and save the documents on Kibo Cloud for multi-device access anytime, anywhere.
- **Innovativeness:** Kibo offers a complete Reading Learning suite - Content Aggregation, Content Delivery, and Immersive Reading and Learning experience as compared to competitive products either offer an e-book Reading platform or an OCR platform.



Geographical Region Targeted

APAC and Africa



Cost

INR:25998 for a single purchase
(Bulk-discounts applicable).



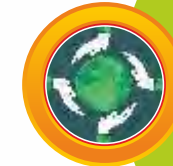
Sold

32



Product Positioning

- The product offers BYOD model: For Phone/Laptop/PC, making it suitable for individual and institutional use.
- **Institutions:** Inclusive schools, Universities, NGOs, Blind Schools, Government Public Libraries, Government and Private Offices employing people with print and learning disabilities
- **Individuals:** VI individuals who are pursuing higher education or preparing for competitive examinations and VI Employees (Govt/Pvt.)



National/Societal Relevance

- Kibo XS empowers people with Print and Learning disabilities like Blindness, Low-vision and Dyslexia towards inclusive Education and Employment.
- Education: Students pursuing education who earlier had to rely on Braille/Audio-books, now get real-time access to Printed/Handwritten Content through Audio, motivating them to continue Education
- Employment: VI-Employees who were earlier offered Voice-process / BPO-jobs now have equal-opportunities to perform any task, hence, grow professionally, resulting in increased GDP-prospects by 7.5%



IP Status

Patent published:201921006144



Import Substitution

NA



Export Potential

- The product is already being exported to Singapore for the Elderly Reading Assistance use-case. Also, In talks with distributors across APAC and Africa.



Major Achievements (include awards)

- Winners, BIRAC-Social Alpha Quest for Assistive Technologies 2019
- Top 100, 8th Action For India Forum 2019
- Top 5, Nasscom Social Innovation Forum 2019, Accessibility Category
- Winners, National Conference on Social Innovation, Pune International Centre (2018)
- Winners, Nasscom Product Conclave (2018)
- Winners, Nasscom Design4 India Award (2018)
- Obtained Funding(Grants):Innocity Pitch Grant, CIIE, IIM-A(2019), WEE Foundation Grant, SINE, IIT-B(2019), UnLtd India Grant (2019), Nidhi-Prayas Prototyping Grant (2018)

Network of Air Quality Monitoring Devices



Indoor AQM Devices



Personal AQM Device



Mobile AQM Devices



Outdoor AQM Devices



Unique Selling Point

- Establishing a network of low-cost air quality monitoring devices to micro-map the local air pollutants and creating heat-maps through real-time data of defined pollutants.
- Innovativeness:** Aerogram's network of smart and low-cost devices allows the devices to communicate with each other, and is regularly calibrated to ensure durability and reliability of data.



Geographical Region Targeted

Delhi NCR, Haryana, Punjab, Andhra Pradesh, Tamil Nadu, Bangalore and later Pan India



Cost

- Personal Device: INR 4956
- Outdoor Device: INR 14986



Sold

300 units



Product Positioning

- Government – Departments of Environment, Transport and Tourism
- Private Institutes – Hotels, Schools, Offices, Colleges and Car manufacturers
- Successfully installed on Delhi public buses under DIMTS



National/Societal Relevance

All developing nations face the issue of air-borne diseases caused by harmful pollutants. Most of these pollutants are due to increasing levels of constructions taking place. Hence, it becomes a necessity to generate awareness on local air-pollutants on real-time basis in order to monitor and limit personal exposure, especially for children, senior citizen, and population more prone to air-borne diseases.



IP Status

Patent filed: 201811035480



Import Substitution

The air quality monitoring devices that are imported are high in cost and are not technologically fit for creating a network for local mapping on real-time basis. Such foreign initiatives also offer services such as prediction model for air quality index. Aerogram intends to substitute these devices and enable data that is very convenient and cost-effective for the users.



Export Potential

The necessity of the innovation will require Aerogram to export devices as well as services to developing nations across the World.



Major Achievements (including awards)

- Successful installation on Delhi public buses under DIMTS.
- Paid Order for establishing Aerogram network under Smart Campus initiative.

Nutrition Rich Dehydrated Food Produced by Solar Conduction Dryer



Unique Selling Point

- S4S Technologies is the food tech company serving to global dehydrated food market of USD 58 billion. With its patented UN award winning Solar Conduction dryer (SCD) dehydration technology, women farmers cum entrepreneurs produce dehydrated vegetables at the farm gate and sell to S4S.
- S4S aggregates these produces, does quality check and secondary processing at its ISO grade factory and sells these products to a range of B2B and B2C consumers. S4S farmers earn extra money by reducing farm level losses and creating value added products where as S4S earns by top up margins on these unique and nutritive dehydrated products.
- **Innovativeness:** The innovation offers several unique features: Electricity free solution, 2-3 times cheaper than other solar dryers, Zero operating cost and its payback period is just 100 days, SCD retains 45% more nutrition, better color, flavor and hygiene than open sun drying, and it is a modular system keeping in mind women farmer.



Geographical Region Targeted

India, Nepal, Bangladesh, and Kenya



Cost

USD 100-1000 range per farmer



Sold

2,700 units



Product Positioning

- Both B2B and B2C
- The Make in India technology is already proven in all states of India and present in 13 countries globally.



National/Societal Relevance

S4S provides solar dryers to farmers to process vegetables and buys back processed produce from them. It helps 1) to reduce post-harvest losses 2) produce preservative free nutrition rich products for improved nutrition for rural families 3) assured income via buy back to farmers, 4) improves nutrition and 5) gender equality and livelihoods. S4S model helps to overcome the issues like: 1) Target saving over 60 million tons of fruit and vegetable loss, 2) Overcome Indian malnutrition which is 1/3rd of global population, 3) Reduce farmer poverty and suicides 4) Challenge of climate change by using solar energy.



IP Status

1 Patent filed and 1 Indian Industrial Design



Import Substitution

In India, S4S caters to USD 2 billion dehydrated market and over USD 60 billion of replacement to fresh fruit and vegetable market.



Export Potential

The global market for dehydrated products is over USD 58 billion.



Major Achievements (including awards)

- Won Start-up Grand Challenge, Department of Agriculture, Govt.
- Agri-nutrition study carried out with the help of Grand Challenges India program. Study showed: S4S technology retains much higher nutrition in dehydrated products and they can be used to make daily regular food. The idea is now scaled in Bangladesh and Nepal with USAID, FICCI and DFID. Scale up is being supported by FactorE Ventures (Global Venture Capital firm from USA), Shell Foundation and DFID plan to invest in business showing potential to scale commercially.
- UN award winning patented solar drying technology that maintains highest nutrition covered under Forbes Future Food Factories Series.
- Forbes 30 under 30 Leadership award team.
- Partners: Industry level mentorship by Marico Innovation Foundation. Polymer material and business expertise brought by Covestro (Germany).
- United Nations Environment Leadership Award, Germany.
- Global Dell Social Innovation Award, USA.
- DBS-NUS Best Social Enterprise Award, Singapore.

Preventive Healthcare Awareness



Unique Selling Point

- Spreading Preventive Healthcare awareness and Patient Education with the main focus in Tier 2 and Tier 3 areas where the gap and need is more. The Company will launch a channel through the internet to run their high quality and highly interactive animated awareness videos. Additionally, the Company will have digital outlets in hospitals waiting areas for the message to reach to the public.
- Every screen is controlled individually therefore exclusive content can be run on different screens. All contents are animated therefore the information gets communicated in a more interactive manner. No Language barrier, audio can be changed according to the territory where content is being displayed.



Geographical Region Targeted

PAN India



Cost

INR 2000/Connection/ month (*Subscription based model*).



Sold

30 units to hospitals.



Product Positioning

Hospital – Government and Private and Pharma Companies.



National/Societal Relevance

In India, healthcare awareness level among the public is very poor. Millions of Indians literally die every year due to preventable causes. This includes nearly 800000 children below the age of 5. The situation can be changed only through making public aware about healthcare. A country's state of development is measured by infant mortality and the company believes to positively impact the infant mortality rate in India by positively impacting the society.



IP Status

NA



Import Substitution

NA



Export Potential

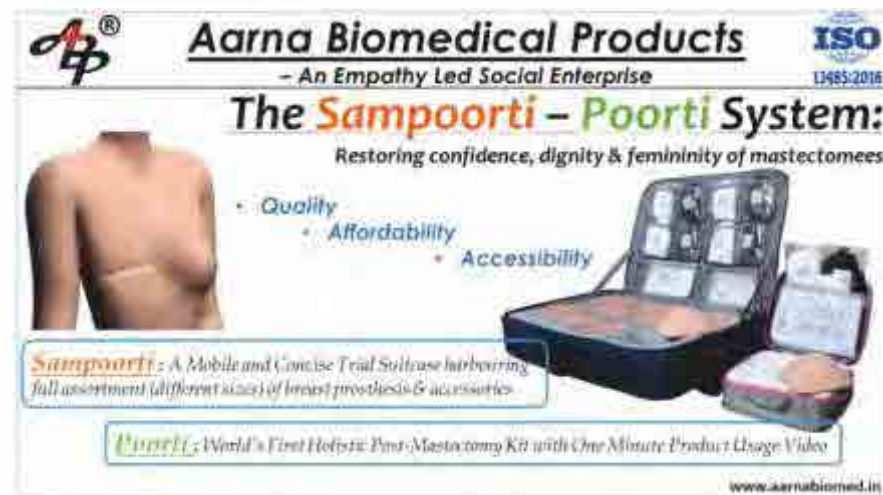
The service can be launched in other developing and under developed countries that are in need for patient education and awareness.



Major Achievements (including awards)

- Launched Beta product in 45 Days.
- Emerging Entrepreneur in The Hindu Business Line.

SAMPOORTI-POORTI System: Post-Surgical Prosthetic Rehabilitation of Mastectomies



Unique Selling Point

- An empathetic, holistic and affordable physical-trial based system aimed at delivering prosthetic needs of breast cancer patients to help them in restoring their confidence, dignity and femininity.
- **Sampoorti**- A mobile and concise suitcase comprising of prosthesis of different sizes and pocketed bras of different sizes with prosthesis covers, patient information forms and information brochures.
- **Poorti**- A user-centric holistic post-mastectomy kit (comprising of light weight silicone breast prosthesis and accessories).
- **Innovativeness**: For the first time a complete solution based holistic kit is developed which offers a trial based purchase.

Geographical Region Targeted

India – States: Jammu & Kashmir, Himachal Pradesh, Punjab, Uttarakhand, Haryana, Rajasthan, Uttar Pradesh, Gujarat, Delhi-NCR, Madhya Pradesh, Chhattisgarh, Bihar, West Bengal, Tamil Nadu and few other cities in remaining states.

Cost

Poorti kit: INR 4500 onwards (*inclusive of GST*) (*Cost increases by INR 250 with increase in the breast prosthesis size*).

Sold

1740 sales
Pre orders: 260

Product Positioning

- B2B, B2C; Cancer Hospitals, Medical Product Dealers, Direct Patients
- The Sampoorti-Poorti system has been deployed in various states in India.

National/Societal Relevance

Breast cancer is the top most common cancer affecting women all over the world with 16,71,000 new cases being reported per year globally and India alone harbors almost 10 % of this disease burden with 1,62,468 being added to the list of existing patients every year (Globocan, 2018).

IP Status

Patent Granted: 296596

Import Substitution

For the first time silicone gel breast prosthesis has been developed and manufactured in India. Till date the prosthetic solution had always been imported leading to issues pertaining to user aspirations, availability, cost and quality.

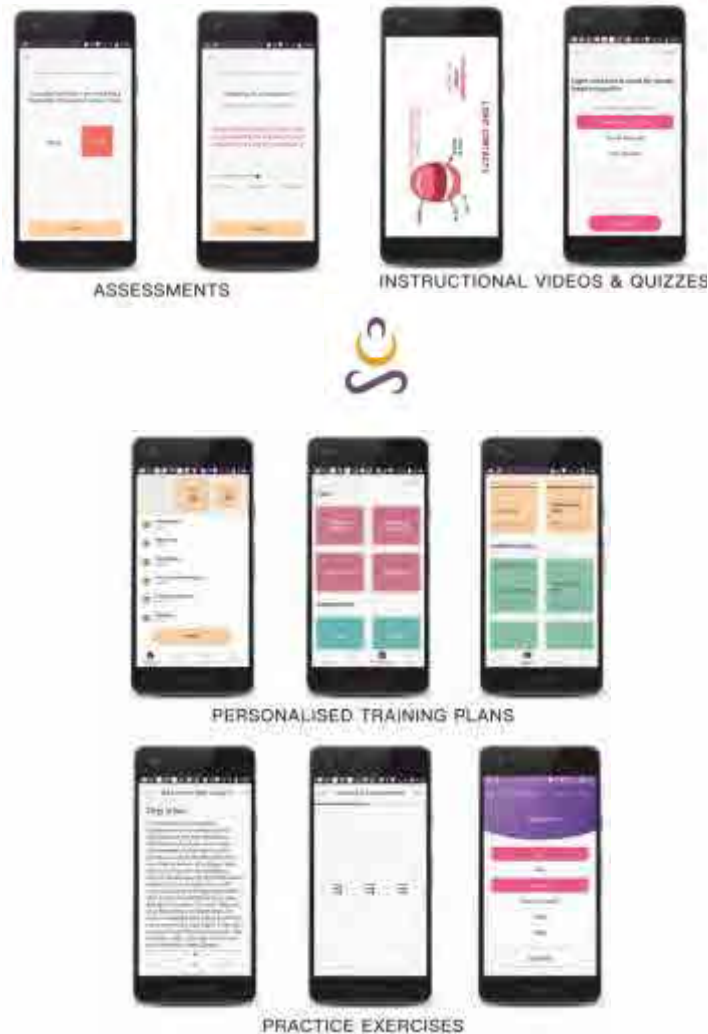
Export Potential

The product is already being catered to patients from Nepal, Bangladesh, Sri Lanka, Russia and Africa.

Major Achievements (including awards)

- Awards and recognitions from Tata Trusts, DST, BIRAC-DBT, Lockheed Martin, IIM-Kolkata, TDB-DFID-IIT-Kanpur, IIT-Delhi, IIM-Ahmedabad, THSTI-Faridabad, Venture Center-NCL, Pune International Centre.
- Coverage from Forbes India, Samarthan, The Hindu, Times of India, The Economic Times.

Stamurai : Speech Therapy App for Stammering



Unique Selling Point

- Current speech therapy solutions are expensive (\$5,000), prone to relapse (80% relapse rates) and inaccessible in developing countries like India. Stamurai solves these problems by automating speech therapy. The app has instructional videos to teach speech therapy exercises and tools to help to practice those exercises. The app also acts like a self-help group with P2P practice and support.
- Founded by IIT Delhi alumni who themselves stammer, Stamurai is currently available on Android and has users across 149 countries.
- **Innovativeness:** As compared to the competitive products the innovation has several key features: a) cheaper (<5% cost), always available (leading to lower relapse) and accessible even in the remote parts of the world.

Geographical Region Targeted

Across the globe, Stamurai has users across 149 countries.

Cost

- INR 1,200/year (In developing countries).
- INR 7,100/year (In developed countries).

Sold

320 units

Product Positioning

Presently, people who stutter. In the future, people with any speech defect will also be targeted.

National/Societal Relevance

Stammering affects over 80 million people in the world, 11 million in India only. Apart from affecting speech, stammering severely hampers their professional and social lives. Currently speech therapy solutions are unaffordable and inaccessible. Less than 1% of people in India have access to a Speech Language Pathologist. Even the fortunate few with access have to pay INR 40,000/year for speech therapy. Through automation, Stamurai brings speech therapy available even to the remotest parts of the country at just 5% of the cost.

IP Status

NA

Import Substitution

Owing to a lack of quality and quantity of speech therapists in India (81% of speech therapists from premier institutes migrate abroad), certain Indian patients is forced to take teletherapy from foreign speech therapists. With Stamurai, this can be avoided.

Export Potential

- \$32bn is spent annually on speech therapy in developed countries, of which \$5b is spent on stammering alone. Stamurai has potential to capture a significant chunk of it.
- In India, Stamurai can leapfrog offline speech therapy and become the standard online provider of speech therapy, bringing in significant export revenue
- Stamurai is already been exported and 50% of our users are from outside India

Major Achievements (including awards)

- One of the winners of "BIRAC-Social Alpha Quest for Assistive Technologies, supported by Mphasis" program. Includes a grant of upto INR 30 lakhs.
- Over 12,000 organic app installs with a rating of 4.4 on Google Play Store.

Stand and Pee



Unique Selling Point

- Public washrooms are not cleaned on a regular basis, making women sit on dirty toilet seats, which may cause contracting urinary tract infections. Sanfe Stand and Pee is a novel product using which women can stand and urinate, avoiding contact with toilet seats and preventing UTIs. It is a disposable single time use product.
- Product has been developed in a manner that can be used by a single hand by women wearing Saree or Suit. And it can be accommodated according to the size of the women's area and gives no leakages and zero spill experience.
- Innovativeness:** It is menstrual friendly product that can be used by women during menstruation, whereas competitor products cannot be used during menstrual cycle.



Geographical Region Targeted

Tier 1 and Metro Cities from the company's distribution channel



Cost

INR 10 / unit
INR 99: Pack of 10 units



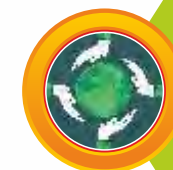
Sold

5 Lakh units



Product Positioning

- Pregnant Women, Women with joints pain and women travelers
- Targetting Rural Markets through CSR and NGO Distribution channel.



National/Societal Relevance

Around 71% of the public washrooms are not cleaned on a regular basis, making 50% of the women suffer from the UTIs at least once in their lifetime. Preventing these UTIs is a big challenge, and therefore Sanfe addresses the problem by eliminating contact with the dirty toilet seats.



IP Status

Patent Filed: 201811023726



Import Substitution

No product in this category is imported so far.



Export Potential

Currently, the product is under beta phase trials in Nepal, Bhutan, and US. Developing countries of the world are facing hygiene issues, and feminine hygiene is untapped market in these countries, where female hygiene category is expected to grow at CAGR 7.8% being \$50 Bn+ category.



Major Achievements (including awards)

- Incubated at IIT Delhi.
- Received BIRAC SEED support.
- Received HPCL Investment.
- Student Innovation Award EO GESA.
- Presence across the US, Nepal, Bhutan, and India.

TurnPlus: A Assistive Mechanism



Unique Selling Point

- TurnPlus offers easy entry & exit into the front seat of a passenger car for people with special medical conditions like arthritis, knee & back problems etc. Turnplus caters to the following conditions: pregnancy, multiple sclerosis, rheumatoid arthritis, leg amputation, calipers, corrected polio, all wheel chair users, parkinsons, osteoarthritis, paralytic cases etc.
- **Innovativeness:** a) Installation time is just 3-4 hours and can be done at customer's place, b) No modification to the car – which allows the user flexibility to change car without losing any value. c) No maintenance required & comes with 3 year warranty, d) Almost 1/3rd the cost of similar imported product, e) After installation any normal person can also use the car without any discomfort



Geographical Region Targeted

PAN India



Cost

INR 45,000 (Includes installation & transport with 3 year warranty).



Sold

90



Product Positioning

- B2B – 35 (Cab Aggregators)
- B2C – 55 (Direct customers)



National/Societal Relevance

In India, today 2.68 Cr people are disabled. 20% of the disabled persons have difficulty in movement which causes problem in commuting. Most of the limited mobility persons have problem in getting in & out of cars in India today. In India today there is no such product available which is completely engineered to provide assistance. The solutions available are mainly local modifications which are largely dependent on the local garage. There are imported solutions which are very expensive & have just a couple of dealers all over India and in case of any problem with the product, service is another concern.



IP Status

Patent Filed: 2701/CHE/2013



Import Substitution

The product offers substitution of the similar imported products which are very expensive & have only a couple of dealers. The customers have to send their cars to the dealer & wait for more than a month for the modification.



Export Potential

The product can be immediately exported to all neighbouring countries which have similar regulations as the Indian system.



Major Achievements (including awards)

BIRAC-Social Alpha Quest for Assistive Technologies

XL Cinema (Mobile Application)



Unique Selling Point

- XL Cinema is a mobile application (audio content delivery platform) which enables a visually impaired person to listen to audio description of a movie (content) in private using smartphone synchronised to the video playing in theatre or at home. This application also enables user to listen alternate audio track of a movie in the language of choice privately through headphone connected to the smartphone. The application synchronises audio description track or alternate audio track with the help of listening to ambient audio in theatre or at home within few seconds. This application replaces assistive listening devices and makes every smartphone loaded with the capability of performing like Assistive listening devices (ALD).
- Innovativeness:** Robust Audio recognition using Peek Validation and cluster recognition. Offline and Online mode for better result in theatre with no network or weak network. Play on the go capability.



Geographical Region Targeted

App is being used in more than 70 countries. The language service is spread out as per the availability of languages.



Cost

For Visually Impaired it's free.



Sold

12000 units plus Audio tickets for VI and 30,000+ for language.



Product Positioning

- B2B: It is for Audio description, model studios are charged for hosting AD Tracks
- B2C: It is for Multiple Language and not commercialized.



National/Societal Relevance

- As per Right of Persons with Disabilities Act, 2016: The appropriate Government and the local authorities shall take measures to promote and protect the rights of all persons with disabilities which include, —
 - Developing technology, assistive devices and equipments to facilitate access and inclusion for persons with disabilities in recreational activities;
 - All contents available in audio, print and electronic media are in accessible format;
 - Person with disabilities have access to electronic media by providing audio description, sign language interpretation and close captioning;"
- The company aligns with the provision of the act.



IP Status

Trade Secret



Import Substitution

Audio description equipment (Assistive Listening Devices) are available by Sony, Dolby, Siemens and others which vary from 30000 to 60,000 INR per equipment. A minimum of 5 equipment if installed per auditorium (Screen) it would have costed 123 Crore rupees to install ALD equipment for 8,200 plus theatre screens for India. Thus the innovation can offer a substitution and save cost.



Export Potential

Already used internationally.



Major Achievements (including awards)

- Social Alpha Award winner.
- Nipman Microsoft Equal opportunity Award 2018.
- 10th NCPEDP-Mphasis Universal Design Awards Top 100.

Testimonial

“ We appreciate that BIRAC provides an unique opportunity for the startups & innovators to foster the innovation, especially in the area where Regrow indulges, stem cell technology & cell therapy. We thank Team BIRAC for the support provided in the development & clinical trials of our innovative product UREGROW–Cell Therapy for Urethral Strictures. ”

**Jill Bhanushali, Chief Administrative Officer
Regrow Biosciences Pvt. Ltd.**

NOTES

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BIRAC's Bio-NEST Bio-Incubators & Regional Centres

