Compendium of AgNext

Name of the Entrepreneur: Taranjeet Singh Bhamra

Location: Mohali/Punjab

Description of the Technology:

AgNext, a company with a vision to make precision agriculture technologies accessible and affordable to world's agriculture community is led by passionate IIT/IIM/Penn State agriculture-technology professionals and mentored by leading industry leaders. During the last one year of its existence, AgNext has been a recipient of many national level awards and recommendations including AFI Silicon Valley Challenge, Accelerator Program of NAARM and CIIE, Incubation at IIT Kharagpur and Best Upcoming Startup Award by Assocham.

AgNext has created IOT applications in Agriculture (Smart Irrigation, Weather Station etc) and has created Artificial Intelligence induced Hyperspectral analysis based Crop and Soil Health Monitoring Algorithms which provides Crop and Soil Analytics for key stakeholders of agriculture and helps them in improving yield and optimise input costs.

Target Beneficiary:

Agri input players, Food processors, Agriculture Insurance Companies, Agriculture Commodity Companies

Operational in geographies (states):

Punjab, Haryana, Rajasthan, West Bengal, Assam

Top 5 challenges confronting the business:

UAV policy in India for Agriculture

Small Scale Farms economics

Agriculture Technology Adoption by stakeholders

Resources in Agriculture Technology

Name of the Company: AgroNxt

Location: Chandigarh

Description of the Technology (400 – 600 words):

AgroNxt aims to empower farmers with quality information on their fingertips to make farming decisions robust. AgroNxt platform combines multiple forms of data including user generated data to minimize uncertainty in various farming decisions such as input selection, usage, pricing, and availability.

AgroNxt helps the farming community by providing them usable information derived from complex data structures and advance data techniques such as Machine learning, Data Mining, Econometrics Modelling and Big Data technologies.

We at AgroNxt, use a hybrid approach in data management using both cloud based and in sit structures ensuring data security without compromising on processing efficiency. We provide quality analytics to our business partners (sellers and companies) so that they can understand farmers' requirements and serve them by designing products and services adequately.

AgroNxt aims to benefit farmer through an extremely simple but super powerful mobile app that digitally lists various agricultural products by different companies. It has a robust decision support system with a farm problem module, a seed selection module and products listed in various categories and subcategories for different agriculture and related products.

AgroNxt thrives to contribute to the global $3 trillion agriculture industry by keeping farmers equipped with usable information that maximizes farm profitability, fostering a prosperous farming community and ultimately leading to sustainable global food security.

Target Beneficiary:

Farmers, Sellers, Companies working in Agriculture & allied sectors

Operational in geographies (states):

Punjab, Haryana, HP

**Incubator: Top 5 challenges confronting the business:**

- Sourcing quality talent
- Learning curve for farmers
- Diverse cropping pattern
- Heterogeneous data connectivity
- Prevalent non-scientific agricultural and related practice

<div align="center">**Compendium of AgroStar**</div>

Name of the Entrepreneur: Shardul Sheth & Sitanshu Sheth

Location: Pune, Maharashtra

Description of the Technology:
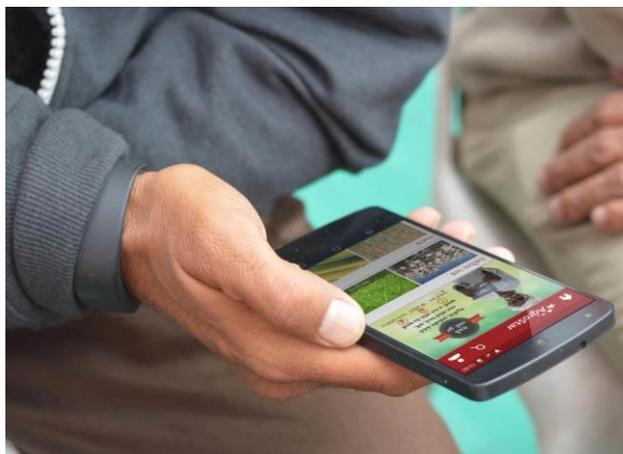
AgroStar is a "direct to farmer" m-commerce platform aimed at simplifying the agri-business experience for the farmers in India. Through our innovative missed call model, we provide a wide range of agronomy solutions and bring a complete range of good quality and affordable agri input products to the doorsteps of the farmer. We attempt to solve problems of adulteration, black marketing, demand supply miss match, poor quality and lack of information that is faced by farmers on a daily basis.

AgroStar has received over 20 Lakh missed calls on its platform and has served more than 7 lakh farmers. We are operational in 3 major agrarian states of the country (Gujarat, Maharashtra and Rajasthan). We plan to scale our operations to Telangana and MP over the next six months. The following are a few key points about AgroStar:

AgroStar has association with more than 150 brands across the input categories of seeds, crop protection, crop nutrition and hardware. ITC, UPL, DoW, IFFCO, Nuziveedu, Rasi, Mahyco, etc. are our partners.

AgroStar has over 75 agriculture graduates serving farmers over call centre and over 50 field force personally assisting farmers.

A few innovations at AgroStar that are solving the real life challenges

1. Helping farmers win by providing them with quality agri-inputs & expert agronomy service at a fair pricing over just a missed call

2. Solving the rural last mile delivery through micro entrepreneurship for assisted logistics

3. Building scalable pest identification & agronomy advisory solutions through smart use of artificial intelligence algorithms

AgroStar differentiates itself from conventional players through extensive utilisation of technology and data to build scalable systems and processes, to understand consumer behaviour and to continuously improve business processes which are leveraged for faster & sustainable growth and provide better customer service. We have launched a multi lingual

farmer focused android app on the play-store that has over 45,000 downloads in a very short span of time.

Target Beneficiary:

Farmers & Agri Inputs players

Operational in geographies:

Gujarat, Maharashtra & Rajasthan

Top 5 challenges confronting the business:

1. Building an efficient last mile delivery system
2. Lower internet penetration leading to lower mobile application utility
3. Higher product return rates
4. Limited information availabity, needed for customized advisory for farmers
5. Competition from unorganized players on the price front

<div align="center">**Compendium of CropIn Technology**</div>

Name of the Entrepreneur: Mr Krishna Kumar – CEO & Founder, CropIn Technology, India

Location: Bengaluru, Karnataka

Description of the Technology:

CropIn Technology is a Farm Management-Monitoring-Traceability (agriculture data and analytics) business solution provider based in Bangalore. CropIn Provides SaaS based service to Agribusinesses in India and abroad, enabling partners to analyze, interpret and gain real time insight on crops and farms so as to be able to take corrective measures on time.

With presence in over 5 countries, 18 states across India and experience of working with over 70 enterprises across 100+ varieties of crops, CropIn Technology is changing the lives of over a million farmers by merging technology with agriculture.

SmartFarm: Incorporates end to end operations, guidance systems and alerts. The tool provides a real-time view of the farms: Complete geo-tagged information about the People, Produce & the Production operations. It also enables simplified control of complete farm undertakings/ set-ups scattered over geographies through a single click or a single touch.

SmartSales: Retailer management for order, stock and payments. Ground level sales visibility, flexible systems to conduct events and training and also empower sales staff with marketing and sales strategies

mWarehouse: Comprehensive solution for pack-house and processing providing traceability to the last mile. The application records and reports the entire journey of movement from planting to harvesting to the initial packaging going until the last mile of delivery.

CropIn's work with McCain, Godfrey Phillips, Louis Dreyfus Commodities, Philip Morris, Atlantic Sun Farms, Sulphur Mills, Big Basket and many others have contributed to the experience and growth of the organisation.

Target Beneficiary:

Input Seed Companies, Agro Chemical Companies, Contracting Farming Enterprises, Organic companies, Tech Savvy New age farmers, Agri exporters

Operational in geographies (states):

18 States in India, currently also in 5 Countries Globally (Expanding up to 18 in next 2 years)

Top 5 challenges confronting the business:

Expansion to new markets, Hiring right talent, Rural Telecom Penetration to name a few.

Name of the Entrepreneur: Vijay Pratap Singh Aditya

Location: NCR/Noida / Uttar Pradesh

Description of the Technology (400 – 600 words):

Ekgaon Technologies Private Limited was founded in October 2002, on a belief that a for-profit, private limited organisation can also work for social good by leveraging technologies to create access and markets. A globally recognised and awarded institution for its innovation and creativity, ekgaon over the last 13 years based on our deep understanding of the rural Agri-supply dynamics, have created a strong platform comprising of strong technology tools across various levels of the supply chain starting from the farmer to the end consumer. We continue to work in the rural services space for over 13 years and today have impacted the livelihoods of over 1 million rural households in ~10,000 villages across seven states in India.

Unlike most other players which are focussed on the front end of the supply chain - ekgaon platform comprises of strong technology tools across various levels of the supply chain starting from the farmer to the end consumer. These are based on deep understanding of the rural agri-supply dynamics. Some of these are summarised below:

1. Farm & Farmer Aggregation Tool: KYC compliant - mobile based farmer on-boarding tool (over 20,000 KYC compliant farmers on-boarded in Chattisgarh, Madhya Pradesh and Tamil Nadu in the last two years).

2. Agri-Produce Traceability Tool: Cluster based farm productivity enhancement tools (with features like crop variety specific advisory, mobile based 2D bagging/ tagging, quality checks and controls, tracking and traceability) - for village level aggregators (10,201 farmers agriculture income has been increased by 63% in the last two years)

3. Warehouse Management System: GSMA Award winning mobile based warehouse inventory management tools for farmers and producer companies (Proven and tested with over 200 SKUs)

4. Multi-Channel Sales Management Platform: Market linkage via an e-commerce platform and mobile App to enable urban consumers to buy the products online along with merchant side applications to enable producer companies to manage product portfolio and track orders.

5. Farmer Loyalty Management Tool: Direct from farm procurement and incentive mechanism for farmers with direct bank transfers. (additional 7.5% paid back to the farmer from the initial purchase price).

Target Beneficiary:

Farmers, Producers companies, agri input players and bulk and retail customers

Operational in geographies (states):

Tamil Nadu, Madhya Pradesh, Chhattisgarh and NCR

Top 5 challenges confronting the business:

1) Good quality human resource

2) Bridge financing to middle level of supply chain intermediaries

3) Working Ware house receipt system

4) Credit period financing

5) Funding for scaling business

Name of the Entrepreneur: Krishna Mishra & Suvankar Mishra

Location: City/State: Bhubaneshwar, Odisha

Description of the Technology (400 – 600 words):

eKutir's human-digital platform connects markets to billions of smallholder farmers helping them growing more food. eKutir innovates in digital technologies and data science to provide a human-digital platform where it was non-existent and not possible before, a continuous stream of data points and information that create efficient markets, creating proven increases in productivity, income, and dramatic cutbacks in waste for the smallholder farmers. The products are developed on SaaS platform and come with a unique digital technology and synchronization framework tailored to the environmental constraints typical of rural markets.

Through a decentralized network of micro-entrepreneurs/field agents, eKutir converts an exploitative and fragmented agricultural system into a collaborative and connected eco-system. Digitally trained entrepreneurs, equipped with our suite of low-cost mobile applications, extend agricultural services to the last mile, providing affordable soil analyses; reliable, high-quality inputs; sustainable and safe practice education; and key market connections. Concurrently, these entrepreneurs connect suppliers, aggregators and distributors to this network of smallholder farmers, providing simplified streams of communication, data and products between the many stakeholders in the agri value chain.

This highly-personalized and holistic approach generates rural employment, sustainable income, and increased productivity while still reducing the costs, communication challenges and time associated with each step of the process. The design of a decentralized, risk-mitigating, and transparent infrastructure for entrepreneurs and farmers helps in scale and replication.

Product – Our core product is "Agri Suite", which is built on SaaS platform and contains the following modules that encapsulate all the modules required by a smallholder farmer.

1. **Agri Plan**

Create a crop Agri Plan that maximizes production, with attention to sustainability, market demand and each farmer's particular land qualities.

2. **Agri Nurture**

Analyze the soil of a plot of land and receive an analysis along with recommendations for soil and plant health.

3. **Agri Protect**

Manage plant diseases, pests and weeds that damage agricultural crops.

4. **Agri Seed**

Secure trusted, appropriate seeds for a specific climate, soil and time of year.

5. **Agri Score**

Assess the financial risk of a farmer to help increase farmers' access to capital

Target Beneficiary:

For eKutir, the micro-entrepreneur/field agent is the customer to connect to the beneficiary – smallholder farmer.

Customer Segmentation:

1. **Micro-entrepreneur** – eKutir will directly recruit micro-entrepreneurs.
2. **Private Companies** – Companies sourcing directly from smallholder farmers can use the human-digital platform to transparently engage within the value chain.
3. **Fair-trade Organizations** – Reduce risks by connecting them to smallholder farmers directly use the human-digital platform.
4. **Financial Institutions** – Work with credit bureaus and financial institutions to use the proprietary data from Agri Suite to generate reliable credit scores, helping in access to finance.

Operational in geographies (states):

Odisha, Bihar, Maharashtra, Bangladesh and Cambodia

Top 5 challenges confronting the business:

Entrepreneurs - Finding the right entrepreneurs with good ability and a sufficient literacy level was very difficult.

Infrastructure - Poor Internet connectivity in rural areas is detrimental to quick scale.

Cooperation - New partnerships with development agencies, technology companies, or funding partners would be welcome.

Acceptance by all stakeholders - The eKutir eco-system needs a common agreement among suppliers, buyers, experts, and farmer themselves to function in a collaborative manner.

Name of the Entrepreneur: Sukhmeet Singh

Location: Chandigarh

Description of the Technology:

Technology Platform for solving paddy straw problem through commercializing the straw for energy purposes. Technology is in two steps: Paddy straw conversation into pellets using researched technology and then using technology solution for connecting the stakeholders for utilizing the pellets. Details below

1) Convert paddy straw in pellets which are easy to store and transport
2) Use technology platform to connect the buyers, sellers and the intermediaries of the straw.
3) The sellers give the availability of the straw across the months
4) The intermediaries/FPOs/Entrepreneurs give the details of the machinery for paddy straw collection
5) The buyers of the pellets (Energy power plants, Brick Kilns, etc) give the details of the requirements of the pellets across the year
6) The platform has credit ratings for all the stakeholders and also analytics to give more offers for bulk business
7) Revenue is made through the percentage cut in each transaction

Target Beneficiary:

Farmers, Farmers producer organizations, Local Entrepreneurs.

Operational in geographies:

Punjab

Top 5 challenges confronting the business:

Funding for growth and business operations (Details on request)

Compendium of Future Farms

Name of the Entrepreneur: Sriram Gopal

Location: Chennai, Tamil Nadu

Description of the Technology (400 – 600 words):

Hydroponics is the process of growing plants in sand, gravel, or liquid, with added nutrients but without soil. Future Farms specialises in the following areas of specialisation:

NFT stands for *Nutrient Film Technique*, where a thin film of nutrient is passed either continuously or at regular intervals via a circular or rectangular pipe on which plants are suspended in such a way that their roots are partially immersed into the solution. The plants take up the required nutrients directly from the water and are always hydrated. The empty spaces in the pipes allow enough aeration and gas exchange. These are best suited for cultivating leafy greens, short shrubs and herbs in cold climates or in climate controlled green houses with an uninterrupted power supply.

HYBRIDNFT is a technique that combines some elements of **Shallow Water Culture (SWC)** and the NFT Technology where almost half the pipes are always filled with the nutrient solution. This Hybrid method is best suited for areas that have regular power interruptions and also for areas that have a tropical climate or have a high temperature variance.

Deep Water Culture (DWC) or **Direct Water Culture** is a simple yet effective hydroponics system that works by suspending the plants' roots directly into a highly oxygenated nutrient solution - considered by some the 'purest form of Hydroponics'.

Target Beneficiary:

Urban Farmers, Food Processors, Agri-Logistic service providers, Corporates

Operational in geographies (states):

All States

Top 5 challenges confronting the business:

- Lack of subsidy support
- High capital investment
- Mass market penetration
- Lack of govt. regulation for Hydroponics
- Public awareness

Name of the Entrepreneur: Anandbabu.c and Shivaprakash.L

Location:

Hagaribommanahalli, Bellary (Dist), Karnataka (State)

Description of the Technology:

About solution:
 This innovative approach is 3 tire solutions. First one is "Mobile apps for farmers Second one is "Agri pole" device built on Intel architecture and third is "Analytics platform". In pilot phase itself our apps has been used by 80000 farmers in India and today apps are reaching ONE FARMER EVERY 6th MINUTE through multiplier effect.

- Agri mobile apps: We have developed suite of 25+ crop specific mobiles apps exclusively for farmers in regional language with novel approach that creatively addresses a critical need of information gap by empowering farmers. Our apps can work without internet (because only 4.4% of rural has internet access) . Apps are full of audio visuals which are designed to deliver the information while breaking the literacy barrier. Apps gives end to end information about each crop right from sowing to harvesting including disease management and fertilizer management. Apps also provider reminder support to farmer and driving adherence to package of practice etc.
- Agri pole device: Agri pole is small pole like device which can store and transmit the data to smartphones through Bluetooth even in the absence of internet. Enter suite of crop specific apps can be loaded on innovative "Agri pole" device. (This device got presidential award).This can be fitted in village (one device per village) which can be used to disseminate apps to farmers. Farmer who has smart-phone can download crop related apps from this device even in the absence of internet. Just one such device per village good enough to make the farmer digitally literate and to do knowledge intensive agriculture.

- Analytics platform: As the farmers uses our crop specific application, our apps track the usage patterns and push the information to cloud based servers through SMS in the absence of internet. This way we can track which disease and pest related information farmer frequently referring to, which crop he is growing, which variety is more prominent etc.. This data has huge potential and help policy makers and Government in making informed decisions.

Target Beneficiary:

Farmers and agri input players

Operational in geographies (states):

Karnataka and Now we are extending to North and Eastern part of India.

Top 5 challenges confronting the business:

Diversity is major challenge which takes time in getting content ready for other states

Name of the Entrepreneur: Ashwanth MP

Location: Kochi, Kerala

Description of the Technology :

Kinemach has re-invented the way land preparation is done. A human hand is able to do all land preparation activities for agriculture such as ploughing, digging and weeding by its own, we have replicated that way of human hand on a machine using a mechanism to do ploughing, digging, weeding all using same machine. As the conventional machining has started degrading soil and making it unfit for agriculture by destroying the organic matter in it, we technology being used avoids over powdering of soil and hence protect soil from degradation and also turn over the soil in the best suitable way for agriculture. The machine has brought back the human way to do land preparation and hence a solution for cost effective mechanization and also multiple activities in one single machine

The Indian Agriculture has lost close to 30% of its labourers in past decade due to low wages for laborers, this has created a high need for mechanization in this area. The high cost of single purpose machines and unavailability of machines for rent at peak seasons has created high crop loss for farmers and created the need in farmers to own affordable machines which can do all their activities and support them throughout the year. We have started by inventing a solution for the farmer to solve all his problems related to his first activity of agriculture which is land preparation.

On an environment perspective the product solves the issue of soil degradation by inappropriate machining which has created low productivity and nutrition in plants, We by inventing a technology which replicates the human hand has reinvented and brought back the healthy way of land preparation by preserving the organic matter in soil and hence increasing the productivity and reducing the crop malnutrition.

Target Beneficiary:

Farmers

Operational in geographies (states):

Pan India

Top 5 challenges confronting the business:

1. Dealer Distribution networks creating for deep penetration
2. Government subsidies and support schemes being key influencers
3. Very small sales window
4. Need of high inventory holding capacity to push more sales during sales window

Name of the Entrepreneur: Dev Raj

Location: Shimla Himachal Pradesh

Description of the Technology:

Kisanmanch on the one hand serves as a tool of support to farmers by 24X7X365 model and on the other hand it fulfills the GAP of Agriculture extension services during the absence of govt. representatives. In addition to it, Kisanmanch also promote Farmers to farmer Extension model & also connect private agronomist & other experts when govt. officials are not available.

A picture enabled multilingual (English/Hindi) app helps farmers to check information as per phenological stage wise to do list (package of practices) has been created for 109 crops being cultivated in india and 9 livestock species to help with.

Gathering basic data of farmers like GIS details, land, soil type, environment, and crop cycles and cropping pattern recording so that a better farmer input recommendations can be generated by using historical records of a farmer.

Though the govt. has launched the Soil Health Cards, but we have redesigned the Soil Health Card which are easy to understand by a layman Farmer and promoting Soil Testing, Leaf Testing, Water testing , which in directly helps lowering farm input cost, soil degradation and increasing farm produce quality.

So far there are 10 Labs connected with us, which are performing soil testing and reports are available to download online and the Soil report is also tagged with Farm, hence the Soil nutrient Trend is also being formed.

Our Model is unique as it is a blended business model where in E Commerce activities will help the Micro Small & Medium Enterprises to sell their products at PAN India Level & Services Providers like Soil, Farm Equipment Rental and Technical Support etc. is also rendered at PAN India Level.

Apart from MSME units all over india we are also a platform for many agriculture start-ups to sell their products & services through our platform. Many govt. initiatives like Pradhanmantri Fasal Bima Yojna, Pashu Bima Yojna, Sinchai Yojna, DBT, and Loss Assessment can be made easy without application in just few clicks.

Target Beneficiary:

Farmers, agriculture input players, agriculture experts, transporters, Commission agents, Exporters.

Operational in geographies:

Himachal Pradesh, Uttar Pradesh, Punjab, Haryana & Jammu Kashmir.

Top 5 challenges confronting the business:

1. Investors to scale up
2. Validation of Application by IARI Team of experts
3. Tie up with MSME units in Agriculture & Biotech field
4. Integration with Govt. Departments in India
5. Delay in policies and procedures for Startup.

Name of the Entrepreneur: Nubesol Technologies Private Limited

Location: Bangalore, Karnataka (India)

Description of the Technology (400 – 600 words):
Nubesol Technologies Pvt Ltd is a Bengaluru based precision agriculture Start-Up (Agtech Start-Up). It specializes in providing technology solutions for large scale agriculture data acquisition, advanced data analytics and large scale precision agricultural implementation (thousands of hectares).
Nubesol's stated vision is Creating Positive Impact on Farming and Environment.
Nubesol intends to realize its vision by investing into adoption of advanced technologies in agriculture, technology Innovations which are affordable by farming community, Effective use of agriculture mechanization and on the farm Research and Development in partnership with relevant stakeholders.

Through its portfolio of products, Nubesol offers services for
- Accurately measuring crop acreages

- Crop yield prediction through continuous and precision monitoring

- Increasing productivity and maximising yield through proactive interventions

- Yield threat management

- Advisory services on Soil health, fertility maps, recommended crops

- Advanced analytics on all the agriculture data for better policy and decision making

Unlike any other player in India in this space, Nubesol advanced technology platform is able to do all the above at very large scale i.e. lakhs of hectares together. These application and data are made available to farmers, farm extension officers, farm advisors and policy makers on their smart phones, anytime, anywhere!
Nubesol also offers affordable solutions for agriculture mechanization and engages in farm Research and Development in partnership with relevant stakeholders.

Operational in geographies (states):

Karnataka

Top 5 challenges confronting the business:

For example, challenges that have been faced by farmers in sugarcane industry are factories are crushing less cane, high harvest and transportation cost and loopholes in traditional ways of cane surveying. Nubesol Technologies using its patented algorithm is helping factories to identify exact cane areas and forecast plot by plot with accurate cane acreages. Advanced technology platform also helps in accurately forecasting optimum maturity dates of each cane plot, thus ensuring maximum yield for farmer and maximum sugar recovery for the sugar factory.

Name of the Entrepreneur: Gaurav Tyagi

Location: Delhi

Description of the Technology:

Pycno (www.pycno.in) produces professional yet cheap and easy to use wireless sensors targeted for agriculture that plug into soil and provide users with critical information of the soil and the air from remote locations. All this information is captured by the sensors and get displayed in real time from anywhere you are in the world on our website so that farmers can visualize and understand the condition of their fields. Users will get notification on critical situations through text messages or calls in their local languages which help them take better informed decisions of the situation of their crops and bring a reduction in the use of resources like water, fertilizers and electricity while providing an increase in the quality and quantity of their produce.

Target Beneficiary:

- Farmers: The Indian Agriculture sector is struggling because technology and innovation has not given enough solutions to the problems that they are facing today. Our smart sensors tell them when is best to irrigate and when is best to save water together with recommendations about the right time to sow seeds, probability of diseases, etc. which proportionally assist on increasing overall yields while using less resources. We will make Indian farmers adopt data backed informed decisions and moving on from conventional and inefficient farming.
- Government: The Government would highly benefit from the information that we can provide them of the farmers, for example: what crops farmers are growing in which locations, how were the environmental conditions while the crop was growing and then be able to predict if there will be a scarcity in some regions of some crops and also have a better control on how resources are being used in such regions to have better knowledge on supply and demand. Finally, the information provided can assist with granting insurances to affected farmers with no middleman involved making Pradhan Mantri Fasal Bima Yojana a very successful initiative.
- Scientific research institutes would be also interested in the data provided by the sensors mainly for research purposes on different fields such as seeds, crops, manures for which this information can be fruitful in getting the best product for farmers like best quality seeds under suitable circumstances.
- Private farm large companies like Century potatoes, FarmPik and other food processing units who owns big farms for their produce will need our sensors and services to manage their produce from anywhere in the world.

Operational in geographies:

So far, Pycno has successfully installed over 80 devices in different locations worldwide including places like Spain, Costa Rica, Chile, Cyprus, Nigeria, India, China, México, England and Portugal

Top 5 challenges confronting the business:

- IoT in agriculture has not been a familiar term in India so challenges are faced while making them believe about our technology and innovation.
- Breaking the traditional practices of farming and making them realize the potential of technology can bring in agriculture is still a challenge
- Commercialization of Devices: Reaching to 10 million farmers need a better market plan.
- Scaling

Name of the Entrepreneur: Vikas Goyal

Location: Gurgaon/Haryana

Description of the Technology:
RAVGO offers technology solutions for agriculture industry. We aim to bring modern technology to small farmers who cannot afford the ownership of expensive farming machinery. Small and marginal land holding constitutes 80% of total land holdings in India. Small and marginal land holdings force farmers to use age old technologies. Because of these factors their income remains low and they suffer from poverty. RAVGO is pay for use platform for farmers where they can avail the benefits of farm mechanization. It is bringing transparency and standardization to the agri-machine renting industry by bringing latest technology and best practice. Through RAVGO farmers can access superior farming technology at affordable costs without the hassle of ownership.

Target Beneficiary:
Farmers

Operational in geographies (states):
Madhya Pradesh, Uttar Pradesh (W), Punjab and Haryana.

Top 5 challenges confronting the business:
- Farmer awareness
- Smartphone penetration in rural areas
- Online payment option

Name of the Entrepreneur: Sankalp Save Indian Grain Foundation aka SIGO

Location: Lucknow, Uttar Pradesh, India

Description of the Technology:

Each year, India loses thousands of tons of grains, fruits and vegetables to post-harvest losses. From 1998-2012, nearly 635,000 metric tons of food grains at India's warehouses were lost due to lack of proper storage. Wasted food stocks reduce food supplies, resulting in inflation of food prices, which in turn force households to spend more on food and less on other essentials such as education, health & hygiene and other discretionary goods.

Lack of modern grain facilities also result in lost *pledge-financing* opportunities, uncoordinated business processes at Agri market yards create bottlenecks during a narrow procurement window, leading to predatory procurement practices, which are detrimental to farmers' interests.

This project will facilitate construction of flat-bottom farm bins in food grain-producing regions of India. Such micro-grain storage facilities located in a cluster of 5-10 villages, will assist grain storage on a rental basis, prevent distress sale of crops by farmers and stem post-harvest losses during bumper harvests, facilitate pledge financing opportunities and helps farmers reap better prices at a later date.

SIGO has developed three solutions for the Indian agriculture and food processing sector, namely;

° **Flat-bottom** and **hopper-bottom farm bins** to meet the grain storage requirements of small and marginal farmers on a rental basis,

° **Grameen Kalyan Kendra**, aggregator hubs or food hubs, which are aesthetically, designed market platforms with civic amenities, designed to serve as commerce hubs for agri commodities in rural India. These hubs will allow farmers to add value to their produce, harvests through grading, sorting and cleaning, display their produce, and harvested crops without having to make trips to the agri market yards.

° **Agri supply chain and cluster maps** are agro-cluster defined; last-mile, online, mobile, map-driven directories of various stakeholders within the Indian agriculture sector. Improved supply chain linkages will result in faster dissemination of information, improve vendor-buyer connectivity, reduce layers of intermediaries and stem price volatility of agriculture commodities; resulting in increased social, economic and environmental benefits.

Target Beneficiary:

Farmers, agri input players, Food Processors, Agri Logistics service providers

Operational in geographies (states):

Uttar Pradesh, India

Top 5 challenges confronting the business:

- Investment
- Skilled manpower

Compendium of SB Agrinovations

Name of the Entrepreneur: Mr. G.V Sudarshan

Location: Gobichettipalayam , Erode (District), Tamil Nadu

Description of the Technology (400 – 600 words):

      M/s. SB Agrinovations is a family run concern for production probiotic food supplements for cattle and INNOVATIVE HERBOLIV+-Organic herbal liquid to control intrusion of wild animals like elephants, boars, deers, bison, peacock, rats, rabbit, monkeys and acts as plant growth promoter.

1. HERBOLIV+ (HERBAL PLANT GROWTH PROMOTER + WILD ANIMAL REPELLENT)

An organic herbal liquid used for agriculture purpose. Can be used for all kind of crops. (cash crops, flowers, fruits, vegetables, spices, tea, coffee, greenhouse crops, etc)

Innovation

Animal Repellant + Plant Growth Promoter along with soil conservation and water retention is the main innovation

Benefits

- Effectively controls wild animal intrusion and acts as excellent plant growth promoter.

- Improves the yield multifold and improves the shelf life of end product.

- Also effectively repels minor and major pest, controls rat, wild birds

- Improves the soil fertility helping for profile root growth and improves water retention in soil.

2. Feed Supplements

Mineral Lick

- Produced with its own technology that helps to produce cost effective mineral block with heavy resistance in different weather conditions.

- Helps to solve the mineral deficiency of ruminants, wild animals, zoo animals by licking the block whenever it requires.

- Licks by its own instinct and stays away when it does not require

- Has to be hanged using a rope in the hole found at the middle of the block and should be kept hanging at a height where the animal can comfortably lick the block.

Benefits

- Like a doctor 24/7 inside a farm

- Solves mineral deficiency,at early stage which can lead to major problems in reproduction if observed later.

- Helps in better reproduction, maintains the health and improves the milk production.

Mineral Mixture

- Produces mineral mixture with trace minerals and also with vitamins

- Helps to improve milk production when added @ 25 grams every day while feeding the animal with feed or bran. It is packed in 1kg mostly.

- PPPL also produces FERTITONE which very effectively solves the fertility problems in livestock

Target Beneficiary:

Farmers and Agri input players

Operational in geographies (states):

Tamil Nadu, Karnataka

Top 5 challenges confronting the business:

- Providing services to last mile in remote village.
- Availing required funding supports (Products development Project Funding) from financial Institutions.
- To attract the equity investor (Venture Capital)

Name of the Entrepreneur: Eigen Technologies Pvt Ltd

Location: New Delhi

Description of the Technology (400 – 600 words):

EIGEN Technologies provides solutions for making agriculture industry smart using devices of its platform SENSEnuts. The devices includes Sensors like soil moisture, temperature etc, Radio modules to transmit data, Gateway etc. These devices can be used to sense and collect agriculture data and this data can be used for further analysis.

Name of the Entrepreneur: *SoilSenS*

Location: Mumbai/Maharashtra

Description of the Technology (400 – 600 words):

We have developed the prototypes of soil monitoring system and tested successfully in the laboratory environment. The developed system can measure volumetric moisture content from 5% to 50% with ±3% accuracy. It also measures soil temperature, ambient humidity and ambient temperature. By controlling the irrigation with the help of the developed system, agriculture can be made profitable. Unlike the other commercial products, the systems are developed by considering affordability as well as ease of use for Indian farmers. The system will be designed in a modular fashion consisting of different units like sensing unit, energy harvesting and management unit, and data management unit. The system can predict the water requirement for the field based on the type of soil, crop and growth stage of the crop.

Target Beneficiary:

Farmers, Agriculture University, R&D Labs and Food processors.

Operational in geographies (states):

Maharashtra, Telangana, Andhra Pradesh and Delhi.

**Name of the Entrepreneur**: Mr. Rajat Gupta

Location:

Navi Mumbai, Maharashtra.

Description of the Technology (400 – 600 words):

PLUGnCHILL- based on Latent Heat Thermal Energy Storage system, commonly known as Eutectic technology, has created the pathway for Electric Reefer technology – an alternative to diesel driven refrigeration system.

Eutectic technology works on the principle of thermal energy storage (TES) system and completely eliminates the need for diesel based conventional transport refrigeration. The main ingredient of the TES system is the phase change material, enclosed in SS plates. These material offer larger energy storage density and maintains the temperature of the material at the desired value during delivery based on its melting/freezing point as depicted in Fig. 1
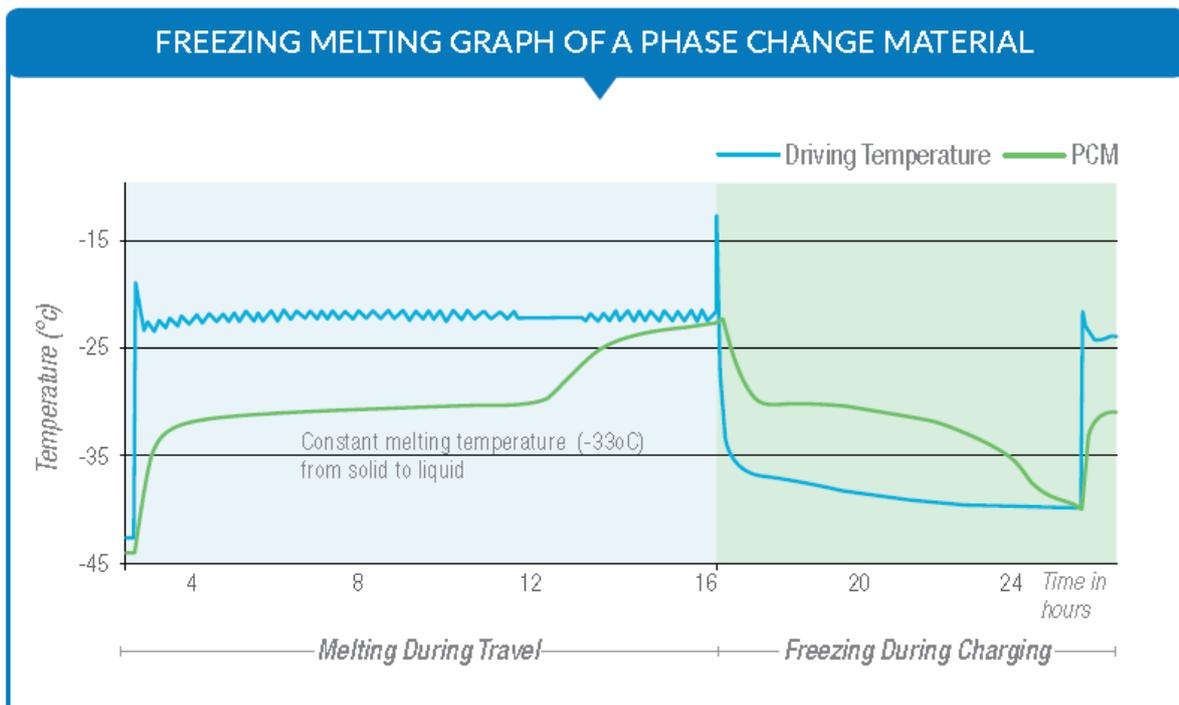
These cold eutectic plates filled with eutectic solution or phase change materials acts as a thermal battery, and are charged by an external condensing unit through the power from the electric grid. These Eutectic plates are modular and can be retrofitted in containers of any capacity. The charging happens during night when the reefer is brought back to the shed and it takes about 5-8 hours to charge depending upon the thermal battery capacity and

charger design. Once the batteries are charged, the vehicle is ready for transportation of perishable foods and can maintain the desired temperature for nearly 20 hours.

Target Beneficiary:

Farmers (Fruits/Vegetables Growers), Food Processors, Agri Logistics service providers, Agri allied business like - Dairy Industry, Poultry Industry, Fisheries, Rural cold room & Logistics service providers.

Operational in geographies (states):

PAN India

Top 5 challenges confronting the business:

- New Concept
- Time consuming for sales,
- Mind set of users needs to be changed from conventional system to PlugnCHILL
- Market reach and availability
- Geographical Challenges (Different environmental conditions at different locations)