

Honey Bee Network

Annual Report 2017-2018

gian

Gujarat Grassroots Innovations Augmentation Network
Ahmedabad

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Dr. Sunil Shukla

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MESSAGE

At the outset, let me appreciate the support and involvement of all fellow innovators, well-wishers, collaborators, the Honey Bee Network members and Team GIAN. We are slowly gearing up to work and learn more with less resources. But a critical mass is surely needed. This year, some of the innovators we supported, did wonderfully well in the phase of prototype development. However, the next more difficult phase is dawning upon us; to turn these into market savvy products to scale up. Despite severe resource constraints last year, the immense support from NIF and other supporters has helped us take a few of the activities forward during 2017-2018.

May we congratulate Nileshbhai upon winning “The Heroes of Indian Agriculture” award at the “Mahindra Samridhhi India Agri Awards 2018” and Abhik Saha for the Gandhian Young Technology Awards at the hands of Honourable President of India, and also qualifying for the JioGenNext. Sanket deserves appreciation for very rapid go-to-market strategy after getting orders from a leading Tea manufacturer for their product!

We realise that we need to be more prompt in addressing the needs of our innovators and incubatees. WE are indeed very impatient to get help for them, but we take time as we also wait for the response from various external agencies. We are trying to be more efficient. We hope by the next year, we will be able to improve drastically and our team will learn from the mistakes we committed even if unintentionally. We will also need more resources to stand on our feet and help our innovators better. Let me assure you all that we all are trying and trying hard to come up to the expectations of the innovators. Do let us know if you wish to be part of this unique story of liking innovators, entrepreneurs and investors relentlessly since 1997.

Several national and international organizations slowly joining hands with GIAN to take this unique grassroots innovation movement ahead.

Counting on your continued support.

Anamika Dey
CEO, GIAN

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Updates on the technologies for incubation/dissemination support and other GIAN activities

Backpack Tea Dispenser by Sanket Panchal

Sanket Panchal developed a Bag Type Insulated Backpack dispenser for serving tea. The idea was suggested by us during the Summer school on Inclusive innovations, 2015-16. Due to restricted space on buses and trains, serving tea can be difficult and also sometimes leads to spillage. Similar accidents have also been experienced around common tea stalls. The product developed by Sanket Panchal and his brother makes the tea serving process faster, with no spillage. Also, a belt with four pockets is provided with the dispenser for convenience in the storage of cups, money, and sugar, tea and coffee sachets etc. GIAN connected the innovator to Shree Paras Desai, Director, Wagh Bakri Tea Group from where he received an order of 70 pieces. GIAN also connected him to TATA Trust and Indian Railways; discussions are under process. GIAN also supported him for patent application.



Backpack Tea Dispenser at Mumbai Music Festival

Origgon–Social Search Engine by Abhik Saha

Origgon, a social search engine whose results not only reduce spam content that was generated by search engine optimization but also shows socially recommended and highly personalized results that just meet your needs. Abhik was awarded Gandhian Young Technological Innovation (GYTI) Awards 2018 by the Honorable President of India. GIAN provide him support for filling patent. Origgon got selected in JioGenNext, a start-up accelerator backed by Reliance Industries. GIAN gave support for company registration and connected with Mr. Sameer Sortur, Dubai for registering the company in the USA. GIAN also promoted Origgon by publishing an article in the Statesman newspaper. Also, GIAN connected the innovator with Radha S Chauhan IAS, CEO of Government e-Marketplace for powering GeM as a search partner, which is under discussion.



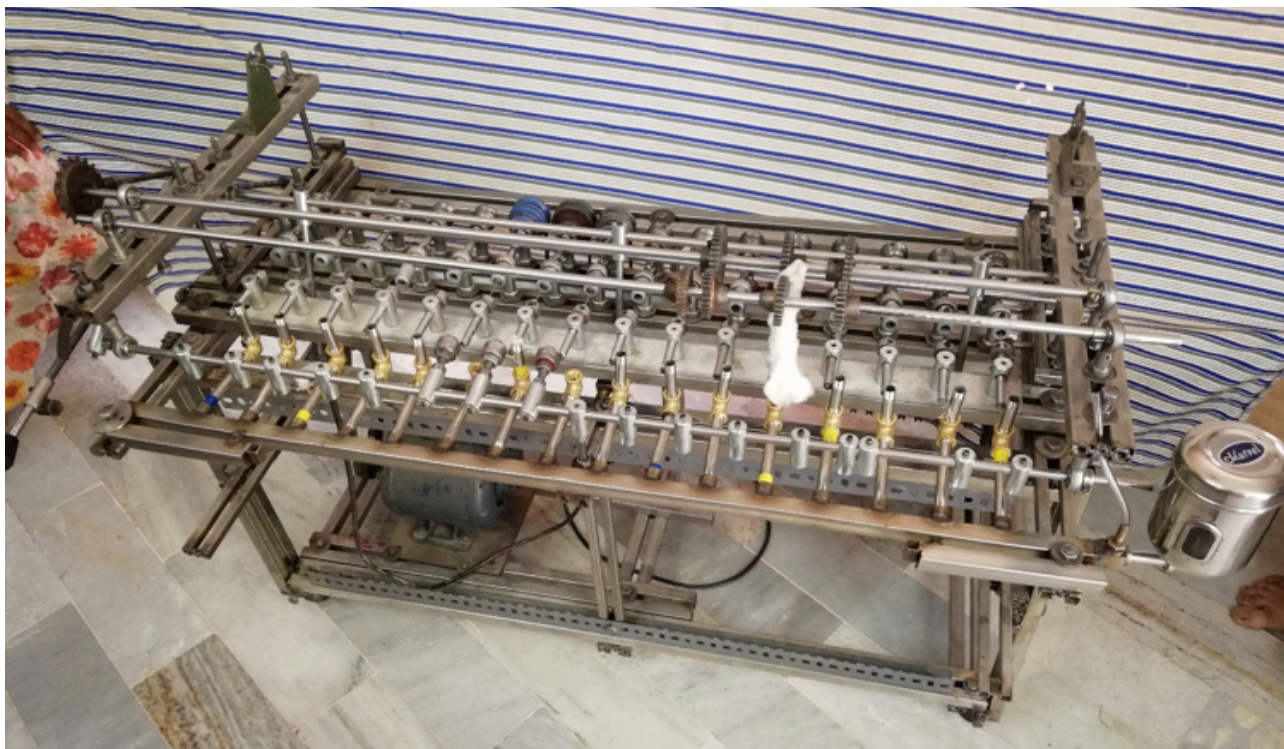
Abhik awarded SRISTI- GYTI Awards 2018 by the Honorable President of India

Cotton Wick Making Machine

Innovator: Shree Jayantbhai C. Shah

The increasing demand in the cotton wick industry has created pressure to increase the productivity by various producers. To meet this demand at minimum cost, wick industry has to use automatic or semi-automatic mechanisms or machines that increase the production rate. Due to the time consuming manual manufacturing of cotton wicks, the current market faces a number of problems like

low productivity, demand supply gap & high cost of the product. Shree. Jayant C. Shah is developing a fully automated machine to replace the manual method of producing cotton wicks. This goal is to save the manufacturer's time, energy, and cost. He also aims at improving the quality of the cotton wicks & to provide capacity building support to the rural, tribal as well as urban people.



Cotton Wick Making Machine developed by Shree Jayantbhai C Shah

Dissemination of Plant varieties and herbal practices in Gujarat and Maharashtra

The GIAN conducted baseline surveys in committed geographical areas like Panchmahal, Dahod, Bardoli, Valsad, Kheda, etc. Also, we identified farmers for conducting field trials through surveys, direct communication by calling farmers of SATVIK and some farmers at the Rajat Jayanti function of SRISTI organization at Grambharti. We prepared literature of plant varieties and distributed it among the farmers. For monsoon season, we identified 60 farmers and four farmer groups in 20 different districts of Gujarat, four farmers from four different districts in Maharashtra, four farmers from Dungarpur in Rajasthan, two Farmers from Haryana and two Farmers from Andhra Pradesh. Major districts covered in Gujarat are Valsad, Tapi, Bharuch, Dang, Rajkot, Botad, Surendranagar, Aravalli, Banaskantha, Sabarkantha, Panchmahal, Chota Udaipur, Dahod, Kheda, Vadodara etc. Field data were collected. A copy of the data sheet was also shared with the farmers for the regular recording of the observation. Also, literature regarding various herbal practices for plant protection was distributed among the farmers. A positive response was received from farmers towards our plant varieties.



Seed Distribution at Grambharti, Amrapur



Blackgram (Urad) variety Bhairav-1 sown at Ranjendrabhai's farm at Vyara, Vadodara



Hyacinth Beans variety JK-1 cultivated at Chetanbhai Patel's Farm Panchmahal.



Paddy variety Chinar 20 was cultivated at DevgadBaria in Dahod



Cotton Varieties, Lok Jatan 1 and Lok Jatan 3 at Gopalbhai's farm in Chota Udehpur



Paddy Variety Chinar 20 sown at Nitinbhai Bhatt's farm at Bharuch



Paddy variety DRK sown at Ghanshyambhai's farm at Matar, Kheda, Gujarat



Cotton Varieties, Lok Jatan 1 and Lok Jatan 3, Hycinth beans JK-1 and Pigeon pea Richa 2000 were sown in 2 veegha at M. P. Gadhvi's farm at Thasra, Kheda, Gujarat.



*Seed Distribution at Panchmahal
Board meeting 2018-2019*

Innovative projects from ITI and Polytechnics

In a new endeavour, GIAN is preparing a database of academic projects of final year students of polytechnic. this would provide access to other students, teachers and any interested person so that our students work on original ideas or build upon what has been done previously instead of reinventing the wheel. Students can simply go on the following link and fill the details:

<https://goo.gl/forms/KoAl31C6bvLcHhj12>

Many projects were developed by final year students in Polytechnic which have good potential but very few of them were converted into marketable products. In the next step, GIAN would select student projects which are beneficial for society and have good market potential. They will get support for developing a marketable product, start-up support, assistance for patent application, technology transfer, etc. The projects received will be scrutinized on the bases of different aspects: social relevance, innovativeness, energy efficiency, environmental impact, gender fairness, and commercial projects; and will be awarded accordingly. We will also take those projects to incubation level to convert them into techno-social enterprises. We would invite students and entrepreneurs of other states to put up facilities in Gujarat so that we become the most favoured destination for small innovative enterprises from all over the country. The activity has been well received and actively taken up in Maharashtra in Pune, Nashik, Aurangabad, Nagpur, Beed districts. Gujarat Technological University and directorate of Technical education is also being approached. The GTU has invited GIAN to have a lecture for all the colleges to promote industrial, environmental, social and cultural connect.

GIAN Summer School for inclusive Innovation – 2018



Every summer, SRISTI organizes the summer school for graduate and post-graduate technology/engineering/design students. We realise that polytechnic students excel in handling machinery but lack the skill of conceptualization. GIAN thought of involving Polytechnic students in the summer school so that they could supplement the programme with their strengths and also benefit from guidance of international faculty like Prof Sanjay Sarma, Dean, MIT Boston, and other

Mahuva nut cracker developed by summer school students 2018

distinguished mentors. In addition, ITI and the Polytechnic students will also get a platform to hone their skills. This year students from different institutes of Maharashtra and Gujarat participated in the summer school. They worked on projects like innovative braille slate, preventing crop damage by Nilgai, low-cost banana fibre extraction machine, Mahua nutcracker, load carrying device for construction workers, etc.

We are keen on registering the Animal Pre-health monitoring device under the state start-up scheme. We also had connected them to IIT Bombay design lab for further improvisation. GIAN has assigned the project of cold press oil machine project to engineering students from PDP. They have redesigned the screw to make it more efficient.

Dissemination of Technologies in Gujarat and Maharashtra

GIAN disseminated innovative technologies from Honey Bee and NIF database in Gujarat and Maharashtra. We conducted surveys and meetings with farmers in Panchmahal, Dahoda, Surat, Valsad, Kheda, and Banaskantha districts in Gujarat for the dissemination of innovations. Also, we conducted meetings in tribal villages of Narmada district and demonstrated innovations: Manual Operated Weeder by Bharatbhai Agrawat, Milking Machine by Raghava Gowda, Smoke less Stove by V. Jayprakashan, Sakthimainthan Pump by N. Sakthimainthan, Head-Load reducing devise by



Khimjibhai, Back Pack Tea dispenser by Sanket Panchal etc. The team explained them the usage and benefits of these innovations. We received demand from farmers for Manual Operated Weeder, Milking Machine, and Smoke-Less Stove. People also showed interest in purchasing Back Pack tea Dispenser for starting their own business. Training was conducted for Multi-Purpose Processing Machine by innovator Dharamvir at Lakhigaam in Bharuch in collaboration with the SHG group who bought the machine. A number of products like soap, hand wash, gel, juice, and tea were prepared from Aloe Vera during the training. We disseminated manually operated weeder in states of Maharashtra and Rajasthan for trial purposes.

Farmers trying the manually operated weeder at Zadoli village, Narmada District.



Workshop and Demonstration of various innovations at Narmada District



Hands-on Training for Multi-Purpose Processing Machine by Dharambir Kamboj with a Women Self Help Group of Lakhigaam Bharuch.

Innovation Exhibition at the Sattvik Food Festival 2017

Sattvik Food Festival aspires to put the lesser known but nutrient-rich food from various states on the platter of the urban communities to promote healthier food habits and lifestyle. GIAN organized a Community Food Lab, a live kitchen facility for the visitors to cook and serve their unique, traditional and nutritious recipes with others. Recipes such as Jao ka Daliya, Ghasiyo (Sukhi Lapsi), Khajoor ki Chikki, Cabbage upma, selan (rice laddu), besan dhinga, aloe vera pudding, etc. were served. Sattvik also hosts an annual innovation exhibition by Gujarat Grassroots Innovation Augmentation Network and National Innovation Foundation. The innovation exhibition at Sattvik 2017, GIAN exhibited the innovations: Manual Seed Drill cum Weeder, Load Carrying Device, Low Cost Solar Cooker, Castor Picking Device, Modified Writing Pad, Cotton Wick Making Machine etc. Also for bringing out ideas, concepts and solutions to daily life problems, GIAN designed a few innovative & creative games for children. Workshops for children like 3D printing, hands-on experience of making low cost solar cookers & how to make useful thing from waste material etc., were also organized by GIAN. GIAN also made the facility to display copper and brass vessels to create an awareness regarding the usage and health benefits associated with them.



Exhibition of traditional vessels



3D printing workshop for children

Energy Conservation Awareness Workshops in Narmada District, Gujarat; sponsored by Gujarat Energy Development Agency (GEDA)

Under the scheme of “Gram Swaraj Abhiyan”, Bureau of Energy Efficiency & Gujarat Energy Development Agency released a small grant for organizing “Energy Conservation Awareness Workshop” at different villages in Narmada district, Gujarat. With an objective to spread awareness regarding energy conservation, GIAN organized 13 workshops at Samariya, Sakva, Waghrali, Samsherpura, Koliwada, Bogaj, Zadoli, Kundiamba, Chikda, Gadkoi, Zariya, Amalada villages of Dediapada, Nandod and Garudeshwar taluka in Narmada district. During the workshop, various grassroots innovations dealing with energy conservation like Shaktimanthan Pump, Manual Milking Machine, Efficient Biomass Stove, Load Carrying Device, Low-Cost Solar Cooker models, Manual and Solar Seed Drill cum Weeder etc. were demonstrated. A feedback regarding the various innovations and villager’s perception regarding energy conservation was collected by the GIAN team. Most of the villagers showed interest in taking up initiatives towards conservation of energy, water, electricity, and environment by using energy efficient innovative household and agriculture techniques/solutions.



Energy conservation awareness workshop being conducted in different villages of narmada district

Community Innovation Lab

GIAN established an experimental Community Innovation Lab at Thaltej Government School, Ahmedabad, Gujarat. The workshops were conducted for children to develop a creative attitude. They were enabled to think of innovative solutions to daily life problems. Workshops were also conducted in Anand Vidhyalay, Hebatpur Government School and SGVP International School at Ahmedabad, Gujarat. Also, a two-day Children Creativity Workshop was conducted in GIAN office. Students from government and private schools found solutions to the problems together. During the workshop, they were taken to local artisans, potters, welders and carpenters. The students identified various problems faced by them. The visit was followed by a brainstorming session, after which they prepared and presented the possible solutions to the problems. As a follow up, they met the artisans, potter, welder and carpenter again the next day and discussed the proposed solutions. STMicroelectronics Foundation took keen interest in this activity and proposed to provide GIAN with five computers to support the workshops.



Low cost solar cooker prepared by students at Thaltej Government, Ahmedabad, Gujarat and Students understanding solar system



Children interacting with artisans making bamboo carpet at Ahmedabad, Gujarat and Children trying to make some product from clay with potters at Ahmedabad, Gujarat

Food and Nutrition Innovation Lab

Gian is trying to build a robust value chain around extremely affordable and nutritious food formulations. Idea is to pool nutritional recipes, ingredients, processes and practices for benefit of the community members like labours, nursing mothers, children, elderly people, etc. GIAN conducted food and nutrition workshops at the peri-urban areas of Ahmedabad, Viramgam, Ankali (Devgadh Baria) & in various villages of Narmada district. The idea is to develop database of unique recipes and traditional knowledge about food preparation practices and train the tribal, rural & urban community to become “FoodPreneurs”. They may make and sell low cost nutritious value added food products. GIAN also collaborated with SEWA Academy for more dissemination and scouting of unique nutritious to/from the number of various rural, urban & metros areas.



The following recipes were prepared and served in the food innovation lab setup by GIAN during Sattvik, 2017. Other similar recipes prepared were thepla vada, chil bhaji ke multi grain pudle, etc.

1. Khajoor ki Chikki (Date bite) by Balubhen Makwana

Ingredients:

500g dates (seedless), 100g desi ghee, 50g cashew nuts (optional), 10-15 cardamom (powdered), ½ teaspoon powdered nutmeg, 2 teaspoon poppy seeds, and 2 tablespoon watermelon seeds.

Method:

Heat desi ghee in a hot pan till warm. Add dates and stir well for 5-6 mins. on low flame. Crush all the ingredients together and add to the hot pan. Stir well for further 2 mins. If all the ingredients do not mix well, then add a teaspoon of water/milk to create a proper batter.

Prepare a plain surface with a coating of a ghee and pour the batter over it. Pat it till it is evenly spread or can also be spread with a rolling pin. Let it cool and then cut into preferred shapes and sizes.

Benefits:

The recipe can be used as a natural sweetener or as a chocolate for children without additional sugar or preservatives.

Good for increasing mental stamina, physical stamina, increasing haemoglobin.

2. Barley dalia by Dharminderbhai Pandya

Ingredients:

1 Cup Barley dalia, Salt (as per taste), 1 Teaspoon Desi Ghee/Oil, 4 cups of Water

Method:

Add salt and ghee to boiled water. Boil it further for 1 minute. Then add daliya to it and you will see it slowly transforming into a thick paste. Stir well, till the water is soaked properly. Turn off the gas and cover the dish and let it stay for five minutes or till it is ready to be consumed. The cooking method is same as for rice flour khichu (famous Gujarati dish).

Note:

The recipe can be consumed either as it is or with curd, buttermilk, vegetables, pulses and pickles. Additional ingredients such as garlic, ginger, chilli, coriander leaves etc., can also be added as per taste preferences. It can also be cooked as Upma by adding vegetables like cabbage, carrots, peas, onion, capsicum etc.

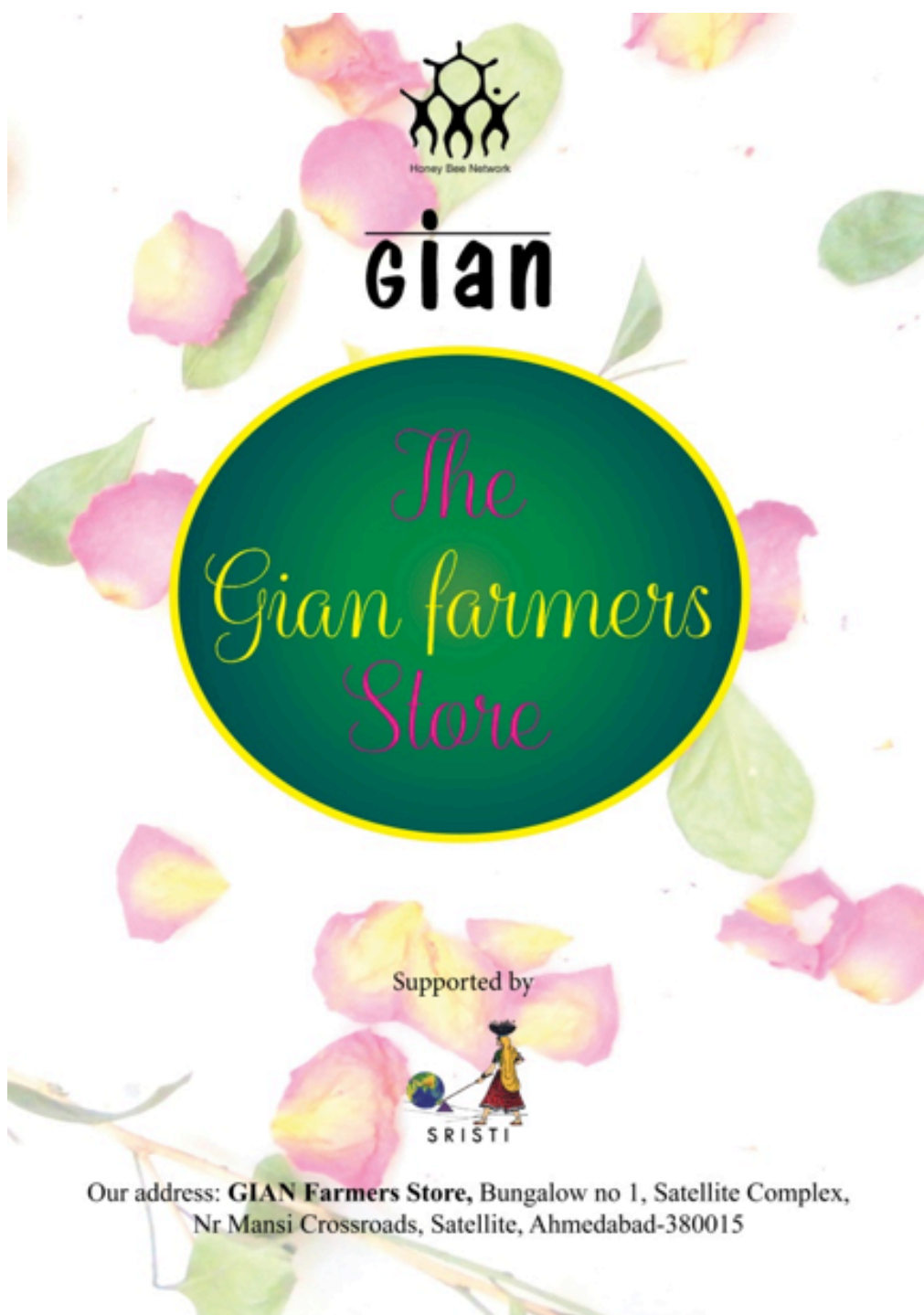
Benefits:

Rich in fibre so beneficial for diabetes, reported to be useful for kidney stone and for reducing cholesterol. Also, reported as beneficial for urine related diseases and infections.

2.2 The GIAN Farmers Store

SRISTI organizes SATTVIK food festival every year. A special market is arranged for the farmers to sell their organic and LEISA (Low external Input Sustainable Agriculture) food products. Over the years, we realized that there was a demand for round the year availability of LEISA produce. GIAN took the initiative and started the GIAN Farmers Store to sell these produce sourced from the farmers members of SATTVIK and sell in the city at a very marginal profit for covering the logistical

costs. Rice, Wheat, Wheat Flour, Juvar, Bajra, Maize, Groundnut, Chola, Moong, Moong Dal, Chana, Val, Oil, Ghee, Turmeric Powder, Jaggery, etc., are sold through the store, apart from sharing various grassroots innovations. Refreshing sharbat of Khathi Bhindi, Fidla and other organic juices is available. The popular non-stick pan, Hariyali Handi made by the Rathwa tribal community is also sold in the store. The pan is coated with natural lac which makes it a nonstick and it takes less oil to cook food. Various Mitticool products are also placed in store: cooker, refrigerator, pots, handi, tawa, glasses, bottles etc.



Our address: **GIAN Farmers Store**, Bungalow no 1, Satellite Complex,
Nr Mansi Crossroads, Satellite, Ahmedabad-380015

New innovations

Stone Picking Machine

Innovator: Shree Bholabhai Khunti, Porbandar, Gujarat

Fields in and around Porbandar district in Gujarat comprise only one to two feet layer of clay and underneath lies the stony layer. Due to such characteristics of the soil, a number of stone & mineral mining activities are taking place in this district and the near by area. It provides employment opportunities to a number of people. But it also affects the farming activity adversely. Regular ploughing for one-two seasons leads to the appearance of the stones from the underneath layer which obstructs the germination of the seeds.



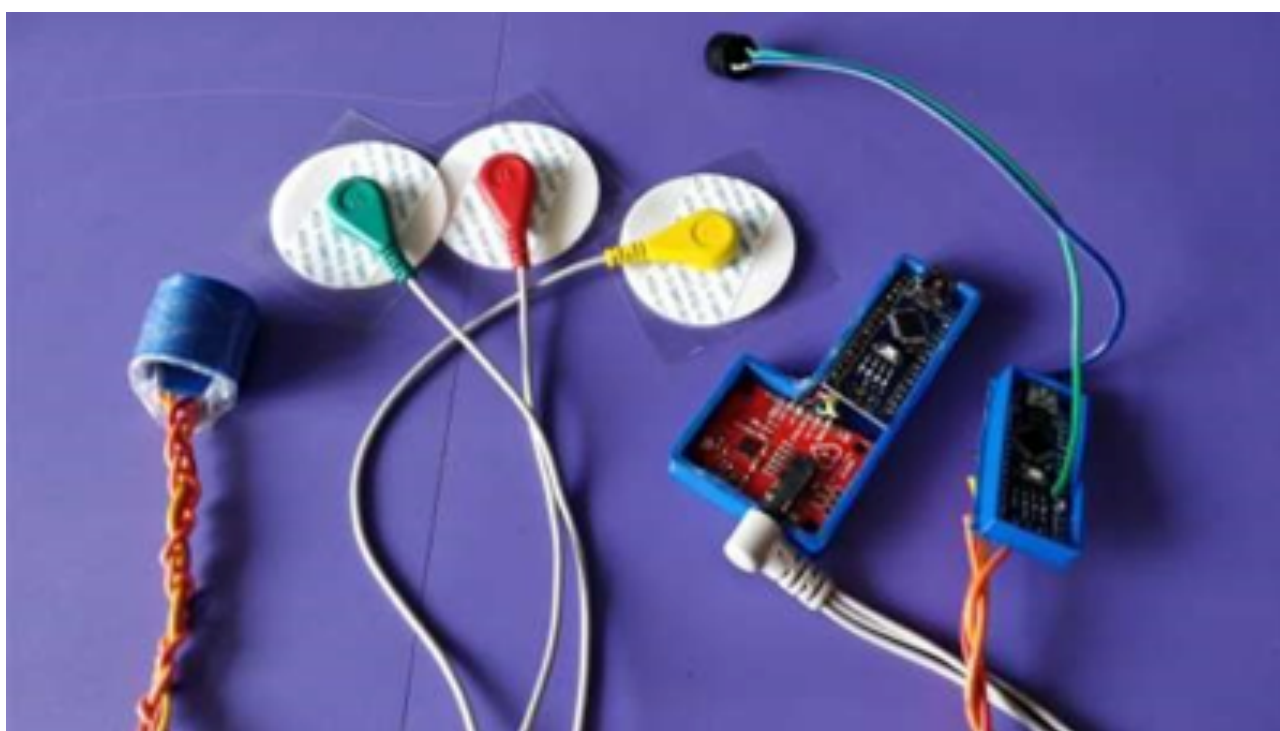
Mesh for segregating the stones from clay and conveyor for picking up the stones with clay from the ground surface

The farmer Shree Bholabhai Khunti (Village & Taluka: Ranavav, Dist. Porbandar) developed the stone picking machine. He hasn't studied much due to household responsibilities at an early age. He was always devoted towards solving farmers problems through his self-learned technical skills and creativity. A general practice in this region was to hire labour for picking out stones but high labour cost and a shortage of labour created problems for the farmers. With the help of this innovative machine, farmers are now able to remove 50-60% of the stones. Innovator wants to develop a more efficient, compact and low-cost machine capable of removing the maximum number of stones. It should be attachable to 10-15 HP mini tractor also.

Animal Pre-Health Monitoring System

Innovator: Saloni, Neeta, Vrushali Bhashte, Vrushali Harad and Sonali, SNTD University, Mumbai

An animal pre-health monitoring device for monitoring the physiological parameters, such as body temperature, and heartbeat rate has been developed. The device is a low cost, low power consumption solution capable of providing real-time communication. Both the hardware and software have been designed to provide a solution which can obtain real-time data from dairy cattle whilst conforming to the limitations associated with external sensor application in variable body environment. This device is useful for milk producing animal owners. The cattle owner can judge the health condition of each animal and share it with vet doctor. This device still needs a lot more work and standardization and improvement. There are not to many point-of-care devices for dairy cattle yet in our country.



Prototype of animal pre-health monitoring system

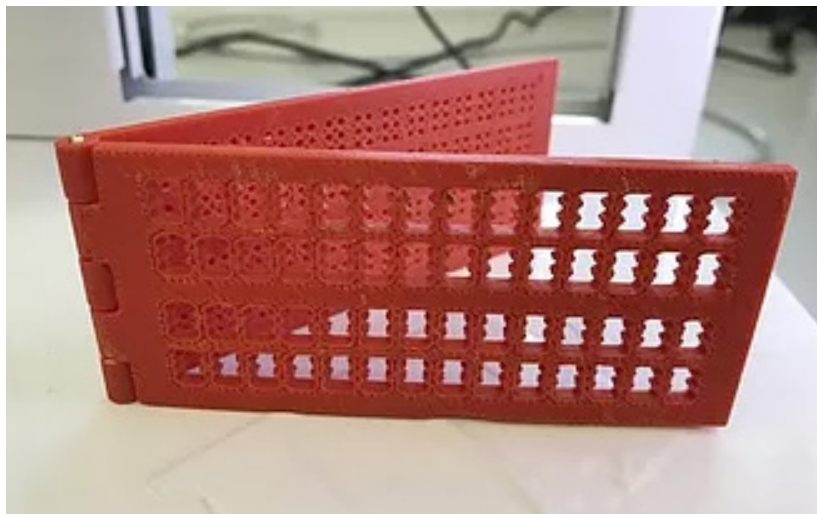
Braille Slate

The innovator realized that the existing Braille slate used by the blind people for writing purpose was difficult to use as they had to write Right to Left instead of Left to Right. For this, they had to think in reverse, e.g. if they wish to write GIAN, they will have to write NAIG, place the letters in the reverse order. Thus, making it difficult as they have to think twice, first, what they have to write and second, what is the reverse of that. Another problem faced by the users is that they will have to pull out the sheet in order to read what they have written. To continue writing, placing the sheet in the same position is a difficult task.



Innovator: Pankaj Saini and Dhaval Pankhaniya, Summer school 2018

The innovator developed a solution by changing the design of the existing slate and stylus in a way that it does not affect the standard parameters and made it user-friendly. Innovator embossed holes on the slate instead of engraving them. Similarly, he developed a stylus with a hollow cylinder in the front, corresponding to the new slate design for convenience in writing. The newly developed stylus now punches the paper from the upper side instead of the lower side. Larger scale testing is awaited. The BPA (the Blind Persons Association) will be contacted to assess its wider applicability.



Prototype of the Braille Slate

Low-Cost orchard sprayer

Innovator: Shree Deepakbhai Pokar, Taluka: Bhachau, Dist.: Kutch

In the favourable agro-climatic zone of Kutch region, horticulture is expanding fast particularly after availability of Narmada canal water in some areas. But even without that, farmers are trying various crops such as Cotton, Castor, Sorghum, Bajra, Groundnut, Beans, Wheat etc., and also fruits such as Pomegranate, Dates, Grapes etc. Spraying pesticides and herbicides over the crops is a tedious and a time-consuming task. Shree Deepakbhai Pokar (Village: Gunatitpur, Taluka: Bhachau, Dist.: Kutch) developed a low cost, compact, tractor operated orchard sprayer. This orchard sprayer can be used with the help of a 5 HP mini tractor or more. The sprayer holds the capacity to spray over 1000 trees and plants in only two hours. According to the crop specifications, we can also modify the machine spraying pattern, nozzle, speed & flow rate. It needs wider demonstration to create its demand and adapt it for variable user needs. Many more prototypes will need to be developed and the workshop will need to be strengthened.



Low-cost orchard sprayer

Deepak was discovered during just concluded 42nd Shodhyatra, August 19-25, 2018 in kutchh district (Rapar to Anjar) organised by SRISTI and joined by GIAN team along with other Honey Bee Network volunteers.

Groundnut Digger

Innovator: Shree Ramjibhai Chaudhary, Taluka: Rapar, Dist.: Kutch

Digging of groundnut is the most laborious job in groundnut harvesting process, and therefore requires a large number of labour. Due to shortage of labour and high labour wages, large number of farmers are not able to harvest groundnut on time. Because of this delay, next season crops are further delayed, and sometimes due to unseasonal rain, a heavy loss is suffered by farmers. A farmer Shree Ramjibhai Chaudhary (Village & Taluka: Rapar, Dist.: Kutch) innovated a low-cost, compact and efficient groundnut digger. With the help of this innovative machine, farmers are now able to dig the groundnut with minimum time and cost involved. It can dig up to 10-12 Acre land in a day with the help of 5-10 labours instead of 40 labours. This innovative machine has the potential for doubling the income of the farmers. Wide-spread trials are needed to establish its efficacy besides strengthening the workshop of the innovator.



Groundnut digger innovated by Shree Ramjibhai Chaudhary

He was scouted during just concluded 42nd Shodhyatra, August 19-25, 2018 in kutchh district (Rapar to Anjar) organised by SRISTI. GIAN team joined it along with other Honey Bee Network volunteers.

Turmeric Digger

Innovator: Shree Sanjaybhai Tilva, Rajkot



Turmeric harvesting is a labour intensive activity and also demands large number of labour. If the crop is not cultivated within the time limit, it gets wasted, hence causing a huge loss to the farmer. Shree Sanjaybhai Tilva developed a turmeric digger driven with the help of 35 HP tractor or more. The farmers can dig up turmeric from 10-2 acre land per day. The turmeric digger is efficient, compact & low-cost. The farmers of Gujarat, Maharashtra, Rajasthan, Karnataka, Kerala,

Tamil Nadu, Chhattisgarh, Andhra Pradesh and various other states can benefit from the rapid & low-cost harvesting process with the help of the Turmeric Digger. It needs widespread trial, many units have to be manufactured for widespread trail and demonstration.

Garlic Digger

Innovator: Shree Sanjaybhai Tilva, Rajkot

Madhya Pradesh, Rajasthan, Gujarat & Uttar Pradesh are the major garlic producing states of India. Garlic bulbs are usually harvested by hand pulling, using a fork to loosen the soil and facilitate lifting. But during the digging process, the garlic bulbs usually get damaged due to hard soil, human error or poor digging condition of equipment. Due to this problem, farmers are not able to store garlic for a long period of time and it also affects the price realization of the garlic.



Sanjaybhai is trying to develop a tractor driven Garlic Digger. With the help of this innovative equipment, farmers are able to dig garlic without damaging the bulbs, and also reduces labour cost. He needs support to make his idea come true.