

Vigyan Ashram Status Report

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April 2021

Meet DBRT Student on campus



Saloni Shinde always has a smiling face even in difficult situation. She is from Begampur village in Solapur district. But her parents migrated to Pune city as a daily laborer. Both of her parents are illiterate. Saloni was about to drop out of the school when Eklavya Bal Shikshan Sanstha supported her for completing primary education. Saloni started working as a assistant in cloths shop during holidays. After her 10th examination, Eklavya Bal Shikshan Sanstha introduced her to DBRT course. She is presently studying at ashram. She prefers to stay on campus even during the second wave lockdown. She wants to work in the food sector and also complete her graduation.

In this issue



Second Wave Lockdown

- Lockdown restrictions again
- Chitraकार – A sketching robot (Fab Academy project)
- Fish Breeding trial is successful
- Overhead Electrical single-phase re-wiring on campus
- Survey to assess impact of lockdown on livelihood of VA-alumni

A] COVID 2nd wave precautionary measures:

COVID patients are increasing in Pune and to prevent spread of COVID 2nd wave, Govt of Maharashtra had announced lockdown from 14th April. As a precautionary measure and in compliance with Govt order, we have asked students to go home or ask consent from parents for staying on campus. Many students returned to their homes. Students from other states stayed back on campus. Parents of few students requested us to allow them stay on campus. Total 11 DBRT students remains on campus from 14th April. We have asked all staff to stay on campus or take leave. There are 30 people on campus including DBRT, DIC students, Fab Academy students and staff. We are conducting regular online classes. Those on campus are completing their practical's. We are planning to complete practical & project work for off-campus students once situation improves.

B] Chitracar (Chitraकार) :



It is robot which can draw sketch as per the design drawn on computer. Design can be of any size. This machine is made by Fab Academy students as part of their 'Make a Machine' project. They made their presentation on 7th April.

This machine uses self-developed blender software interface and Bluetooth serial communication to find paths. Machine structure and electronics made using laser cutter, 3D printer and PCB milling machine. All parts were made in the Fab lab.

For detailed documentation of this machine :

<https://fabacademy.org/2021/labs/vigyanashram/machine/index.html>

For video :

<https://fabacademy.org/2021/labs/vigyanashram/machine/mw.mp4>

C] Fish Breeding Trial is successful

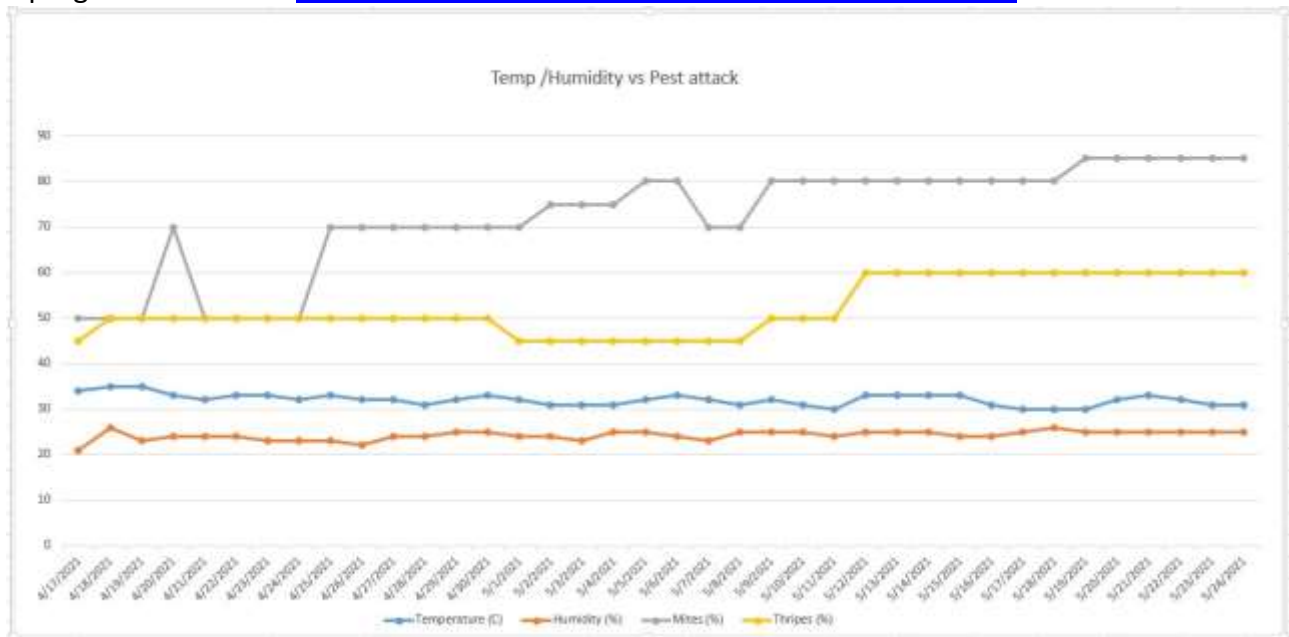


We have successfully adopted 'induced breeding technology' for climbing perch (*Anabas testudines*) fish. This fish has very good market potential and adaptive to a high-density fish farming system. These seeds are not readily available in Maharashtra state. Ranajeet attended online training workshop organised by Central Institute of Freshwater Aquaculture (CIFA) in December 2020 to learn induced breeding technology. After failure of initial 3 trials, we are able to produce fish seeds. Successful adoption of breeding technology will help us to develop a complete 'package of practices' for farmers interested in advanced fish farming techniques especially Aquaponics, Recirculation Aquaculture Farming (RAS), Bio-floc etc.

D] Polyhouse automation and pest prediction:

Suhas is working on automation of polyhouse in the fab lab. He has developed a data logger. It records temperature, humidity of the polyhouse pad by sprinkling water on them at fixed interval. We are now doing analysis of these reading to find its relation with pest attack. This system also has a notification system, it sends message on farmers mobile phone if temperature in the polyhouse goes above 33 degree Celsius. All data is stored on online cloud platform on Thing speak (<https://thingspeak.com/channels/1093275>) to send notifications. After collecting data for one crop of capsicum. We are now working on lab scale version of polyhouse with controlled conditions to verify and analyze different condition on capsicum crop.

Project progress document: <https://github.com/SuhasLabade/Autofarm-Datalogger>



Example of data logged on a logger

E] DBRT skill training update:

Pabal campus activity update:

- i) Engineering section: Students of engineering session learnt basics of civil work while doing a foundation layout & brick laying work. They also learnt basics of carpentry skills while practicing various wood joints. Students completed fabrication of two welding tables with total contract value of Rs.40221/-.
- ii) Agriculture & food processing section: Agricultural section students harvested 138 kg of capsicum, 10 kg spinach and 16 kg alu (toro) leaves while learning farming skills. They also sowed 20 kg fodder jawar & 2 kg lucerne crop after ploughing 20 gunta land. Students also learned skin parasites controls of cows / goats. In food processing section students practiced bakery skills while making bread, cookies for daily refreshments.
- iii) Energy & Environment section: **Overhead Electrical Wiring work** : We had disorganised overhead distribution of wires and connections on campus. Wiring was done over the years and as new rooms were constructed. It becomes difficult for us to do fault finding and repair. Now we have erected electrical poles and electric connections was distributed from the poles. DBRT students were engaged in the work. It's as big learning opportunity team as they fixed 7 new junction box (36 Amps busbar), made 13 new connections using 7-meter service wire in 80 man-days. Total value of contract was Rs. 52000. Apart from regular electrical maintenance work, students also learnt installation of sludge pump in grey water system.



Capsicum from VA polyhouse

- iv) YMC campus (Panvel) & Narmadalaya (Madhya-Pradesh)- DBRT program:

Students of Naramadalaya prepared nursery, prepare vermin compost bed. They also prepared seedling tray nursery for different vegetables. Total value of work Rs.31,149/-



Omprakash working on electric pole

F] Technology Based EDP:

- During past 12 months we have trained 274 beneficiaries in various technologies in food-processing, renewable energy-based application, poultry-dairy-goat farming etc. Through this we are able to incubate 21 new rural enterprises and around 42 are under advance stage of starting their enterprise.

- COVID 2nd wave has re-created pandemic situation forcing many rural youths to lose their urban livelihood sources. We fear this time its impact would be more serious & long lasting. During April, we have started collecting feedback & further need assessment survey for our alumni and EDP beneficiaries. As a first step, we have contacted 72 DBRT alumni from 2015 onwards. We are collecting feedback on impact of pandemic and support needed by them. We will re-structure our training & incubation support based on the feedback.
- 'Kitchen garden' (Hindi) training program : Sessions on 'water management' and 'production & storage of local seeds' were conducted on 14th & 28th April respectively. We have 70 trainees for online training from CORD and Rang Sutra organisations.

Hero of the month: Ms.Sanika Gawade

Sanika has started her CCTV, hardware and networking services at Bhosari (Pune) in the name of 'Shash Infinity Services'. She has taken training and now getting hand-holding support under EDP program.



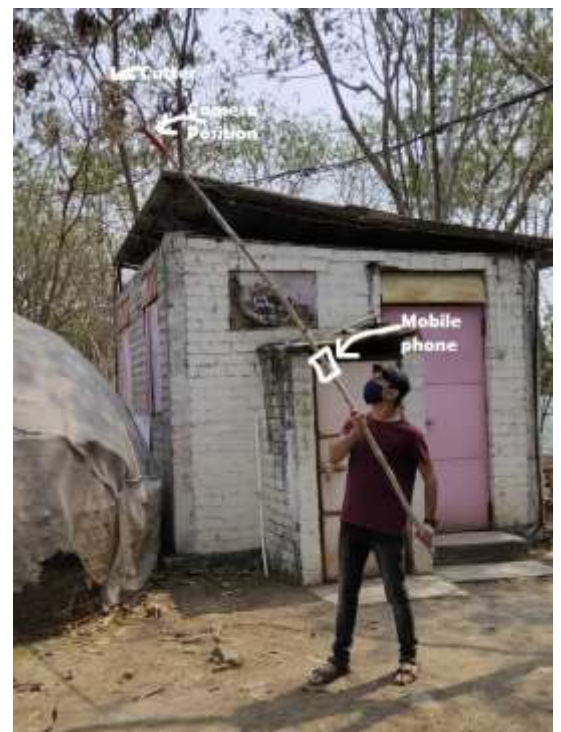
Sanika : Hero of the month

G] Technology Development & Design Innovation Centre (DIC) update:

i) 'Dhanya-Saurakshak' (धान्यसंरक्षक) : Sanket treated 250 kg wheat to test modification made in thermal grain disinfection unit 'Dhanya-Saurakshak'. The unit powered with 2.3 kW heaters & capable of disinfecting 40-45 kg/Hr grains with 55°C operating temperatures. It can kill stored grain pest weevils & reduce moisture content in grain by 1-4 % during treatment. Cost of treatment is Rs.0.40/ kg of grains. We are preparing SOP for it & conduct field trials with farmers groups/ grain traders for standardization of unit.

ii) Sunny & DBRT student Akshay are working on fabrication of 'curd maker' unit. We are making this unit for Mr.Vikrant Pingale (Gauri dairy, Pune) with capacity of 6 lit (60 cups) milk with auto temp controller.

iii) Mukesh fabricated a web-cam & smartphone display based 'mango harvester'. Farmers can attach camera to their existing mango harvester & smartphone. It can capture live image of mango so that farmer can identify maturity stage of fruit. One unit is sent to Dapoli for field testing. We are awaiting feedback from farmers.



Mango harvester

iv) Sonal isolated 10 fungi and 6 bacterial species from compost culture for DNA analysis. She has also preserved 10 samples of fungal culture for analysis.

H] IBT schools online training & classes:

We have conducted 3 online sessions for IBT instructors & students from 15+ schools with 270+ collective participation. Sessions covered topics like H₂S water analysis, Composting of agro-waste and examination pattern for IBT sections. Following are some of the highlighted activities of schools as-

- Sachin conducted online training session for students from 12 schools on testing of potable water. After session, students tested 98 drinking water samples from their village. Out of 98 samples 46 samples tested positive (not fit for use).
- IBT students from Sumati Balvan School, Katraj fabricated open seat-out of 180 ft² (15*12 Ft). The challenge was to construct structure without damaging existing trees. For this instead of using conventional metal sheet roof students used wooden boards, which can be reshuffles as per trees growth. Total cost of work was Rs. 25000 including labour cost.



Water testing at Asade village

- Students of Amboli (Pune) school has constructed ramp for easy access to handicapped students. 9th standard student learnt metal fabrication, civil work, engineering drawing etc skill through this activity.

I] DIY lab @ Pune update :

- Make Your Own Toys @ Chhattisgarh: Priyanka conducted 4 sessions for Atal Tinkering Lab (ATL) instructors. Sessions were hosted live on Youtube with 6000+ collective views. Following are topics with respective video links as :

Date	Topic	Video link
8 th April	Making toys from waste paper & thread	https://www.youtube.com/watch?v=byGSeOf4h4A
15 th April	Being innovator with ATL	https://www.youtube.com/watch?v= USxDHfleek
22 nd April	Making of game using mobile phone	https://www.youtube.com/watch?v=5WVUZ_Slaic&feature=youtu.be
29 th April	Using 'Scratch' for animation	https://www.youtube.com/watch?v=eBMw6ZzspQk

- Priyanka conducted 3 session for DIY Pune students on 'scratch' and 'fusion 360' animation software during April.

J] Other tit-bit –

- i) We are very thankful to SPA Educational Foundation for providing funding support for reconstruction of agriculture classroom, sport ground & scholarship to DBRT students during 2021-22 financial year.
- ii) Vigyan Ashram's strong supporter and friend Dr.Sunil Agarwal passed away on 21st April due to COVID. He was scientist at Dept of Science and Technology (DST). Dr.Sunil Agarwal, Dr.Yogesh Kulkarni and Bhakti Talwelkar jointly edited a compendium on rural technologies in 2019. His sudden demise is shock to Vigyan Ashram team. May God give him eternal rest and the family the strength to bear the great pain.
- iii) Weather record – Rainfall of the month -01 mm (Total – 682.13 mm) ,Max temp-38.00 °C, Min Temp –18.00 °C , Humidity – NA , Water height in well – 6.30 Mtr.
- iv) Energy consumption record- Electricity unit – III Phase - 1107 units , I Phase Export- 1220 units, Import- 203 units. DG used – 05.20 Hrs. Quality of power : Number of interruption- 58 , Normal voltage : 69.06 % , No supply : 6.79%, low voltage :24.15 % , No data: 0%
- v) Animal Husbandry section update – Milk production – 222.75 Kg , Goat- No new addition, Poultry Egg production – 121.75 dozens (FCR – 1.84)
- vi) Biogas consumption – Dung used- 988 Kg , Gas produced- 24.99 M³
- vii) Online visitors: www.dsttara.org – 888(New visitor – 792 Repeated-96) , www.vigyanashram.com – 1546 (New visitor –1296 Repeated- 250)

K] Data Report:

<https://drive.google.com/file/d/1FRdLoFeONkcnHfIJGhkQXBogGyetxNx/view?usp=sharing>

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Photo Gallery :



Hydroponics in polyhouse



Staircase fabricated by DBRT students



Isolation of consortia



Molding and Casting

Fab Academy Assignment



IBT – Chikhali school – Papaya plantation



DBRT project : Small scale dome dryer



Completed toilet block



Hurada Party .. while observing social distancing

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www.vigyanashram.com