TechInAg

Effective & optimal irrigation services through Intelligent Irrigation Bot.

Mr. Shaik Althaf is presently pursuing his degree in Electronics and Communications Engineering at Rajiv Gandhi University of Knowledge Technologies at Kadapa district.

He is a native of Piler, a town in Chittoor district of Andhra Pradesh. His family comprises of 9 members in total and his father and brother both work as daily wage labourers.

Doing extremely well academically Mr. Althaf always wanted to put his knowledge to use and innovate things that will help uplift people in the lower rungs of the society. It was during one of the workshops at his University where he met a few like-minded people like him and what started out as a personal project soon took shape of an innovative technology espousing to provide effective irrigation services.

At the initial stage the thought process was to simply come with a technology/innovation that will contribute towards social upliftment but Mr. Althaf's team post research narrowed down their focus area to agriculture and decided to come up with some innovation in irrigation services.

Explaining his reason to go for smart irrigation technology Mr. Althaf said,"Irrigation is one of the crucial aspects of farming. Just like food if optimal amount of water is not supplied to plants then the produce/ output is going to be affected. Irrigation plays a major role in nutrient absorption and the problem is that farmers don't know what quantity of water needs to be supplied to the plants. Either they end up supplying excess of water, which increases the dissolved oxygen causing plant roots to loosen up or due to this plants can easily get uprooted during storm/rain etc. Excess water makes plants more prone to infections requiring disinfectant treatment. This again increases the input cost at farmer's end which could have been saved had the farmers had proper irrigation knowledge/facility."

Not only this, due to frequent power cuts & shortage of electricity farmers have to irrigate their fields early in the morning. There is safety concern especially in the rainy season, farmers might get electric shock. With no need of human intervention with the SmartBot, farmers can monitor their fields from anywhere & stay safe.

The team started their work in the field of smart irrigation and after intensive study of 2.5 years they developed the prototype. The prototype is an Intelligent Irrigation Bot (IIB) which is powered by Internet of Things (IoT) and operates through a mobile. The Bot which functions on an automated mode, is featured to analyse the moisture content and provides accurate water supply by sensing the moisture in the fields.

Startup Product Details

The startup, which is in the seed stage, aims to aid farmers in irrigating fields optimally. Their prototype, a smart intelligent irrigation bot, a wheeler bot, was created to save farmer's time and effort and control input costs.

The team tested the prototype in a small farmland in their college campus.

Bot Function

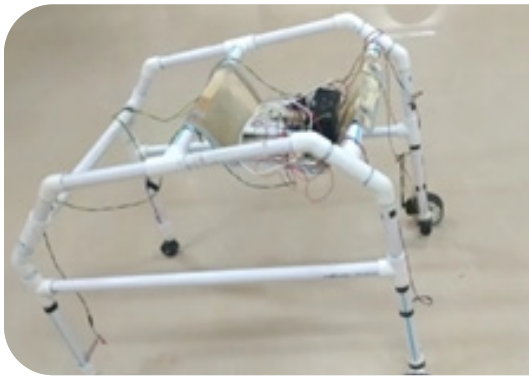
Once placed in the field rows, the bot automatically moves forward & backward in the field inserting sensors randomly in half of the field. The sensors inserted in the field provides the Bot with data which is analysed for different parameters like soil moisture, temperature, humidity, pH levels etc. Based on the analysis the soil requirement is assessed and instruction will be sent to the pump directly without requiring any human intervention.

The bot also analyses the amount of water that is running through the field and based on that analysis it notifies farmers whether the quantity of water is enough or not. And moreover it provides farmer with data on the amount of water supplied to the farm & the moisture content of the farm. The bot will provide all these details via a mobile application. The development of the application is still in prototype stage.

Their technology helps to save on electricity charges and time as well. Accurate information helps to bring down water utilization by 20-30 percent.

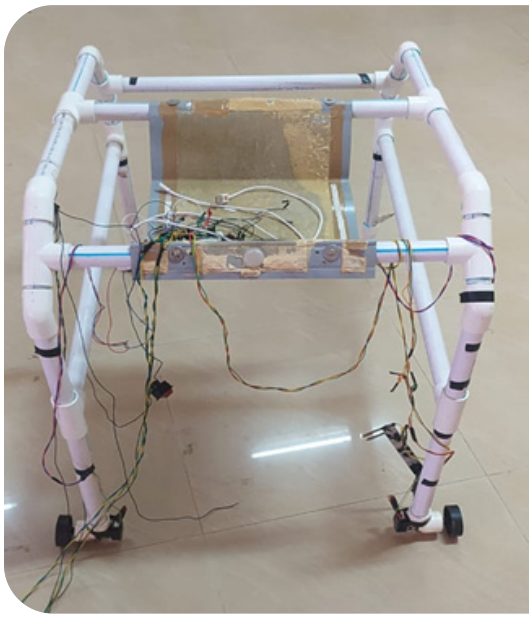
Presently they are associated with Meebuddy for better supply chain management and connected with four Farmer Producer Organizations (FPOs) an Anantapur district.

Marketing Strategy



Presently they are in the process of developing the software, building a website and connecting with more farmers. As a part of marketing strategy they are going to approach FPOs, Polyhouses & Krishi Vikas Kendra's (KVKs). They are also going to advertise on Facebook groups to create a presence for themselves.

With MANAGE's support as a knowledge partner they intend to get connected with important stakeholders & reach out to potential customers.



Social media marketing, interconnections through FPOs and collaborating with Meebuddy are some of their key business strategies.

Challenges

Growing professionally as a student entrepreneur & inculcating an entrepreneurial mind-set proved demanding & exciting.

Operations during Covid

Their technology development got stalled due to pandemic induced restrictions. Since their technology is a hardware based technology and to continue working on the prototype they needed access to laboratories which housed all essential components, but due to Covid induced restrictions they were not able to do so.

"Also our team members are from different districts and during the initial phases of the pandemic we had to work from home which wasn't conducive to the kind of technology we were working on.

And being students we don't have that financial backing that will help us to take on the operations. Covid also delayed the funding from the government side," remarks Mr. Althaf.

Awards & Achievements

- **Received certificate of Excellence on "Innovation and Entrepreneurship in a Post-Covid World" from IIT Kharagpur in the year 2020.**
- **Mr. Shaik Althaf facilitated an "Introduction to IoT and Basic on Robotics" for over 200 UG students as a student co-ordinator of Astro Hack at RGUKT RK Valley 2019.**
- **Finalist for Rakshak 2.0 of Atal Innovation Centre, ST University.**

Association & Key take aways from MANAGE

> *"MANAGE as a pioneer knowledge partner provided the ecosystem and network for TechInAg. MANAGE's training program proved extremely useful given the fact that we are still in our college with hardly any business/venture setting experience. In the beginning we had no idea how a startup specially an Agristartup works, how a founder needs to be, what are the legal proceedings , what kind of marketing strategy to adopt etc.*
>
> *It was the two month training program that equipped us with all necessary skills that will help in our commercial up scaling. We had great mentors all throughout the training program. I would like to express my heartfelt thanks to the entire CIA team for their relentless support. The institute guided us in every aspect of our entrepreneurial journey".*
>
> *- Mr. Althaf*

Vision as an Entrepreneur

Our vision is to come up with tech based solutions for the host of issues plaguing Indian agriculture. We have future plans of stepping into the smart city domain and see how our expertise & background can help for the betterment of this domain. Since our team is very good in Industry 4.0 technology we want to leverage this to the maximum extent possible and design smart devices. And we want to ensure that our technology is economical for all and is specifically directed towards people coming from poor socio-economic standing.

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