
Mangharam Award Essay 1

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I believe that the greatest accomplishment for an individual is their ability to contribute and give back to the community that has raised them up. As an individual, I feel it's our moral responsibility to do so. My accomplishment is in line with this belief. I am in the prototype stage of developing the "Smart Irrigation System with Farming Assistance", a product idea that has received special recognition from StartUp India - Ministry of Commerce and Industry.

This innovation was indeed the result of my passion towards computers and technology. Computers have always fascinated me. I remember playing with a blue-coloured toy laptop even as a four-year-old. As I grew older, I tried finding a way to serve the community through my passion, experimenting with technology. I realised that technology in the agriculture sector has not grown at the same pace as in other industries. In fact, the traditional methods of farming use 70% of the freshwater available and 60% of the water used for agricultural purposes is wasted.

This awareness influenced me in developing a product which can precisely water the crops depending on soil nature, weather, and crop type with the help of an AI integrated app that can provide suggestions to farmers on when to grow crops, amount of fertilizers to be used and when to harvest crops. It is now more important than ever before to revolutionize the way farming works. This product is a step towards that direction.

Agriculture has always been the backbone of India for decades, and it accounts for 14% of India's GDP. In 2020, the agriculture sector employed over 41% of the workforce in India. Agriculture is a big and an important sector in India. With the right marketing and development process, this product can reach and help many farmers of India.

I started this development process back in August 2020. The fully functional prototype will be ready by the end of this year and I plan to make it available to farmers all around India by the end of 2022.

I have always been a great admirer of Artificial Intelligence; hence I plan to do research in this field. Through this, I hope to make people's lives easier through advanced, yet affordable implementation of AI applications in our daily tasks. Mangharam Award of Excellence believes that setbacks are undeniable, however "*successful people have the tenacity to continue trying despite facing setbacks*". The world of programming and developing software is tricky and complicated. There are countless aspects to deal with when creating a sophisticated technological output (e.g. ML models, app, product). There have been many times when I failed, but I did not stop there.

I clearly remember this instance where I faced a tricky situation when creating an automatic watering system that would work by monitoring the soil's moisture. I had to run the following tasks on the Raspberry Pi all at once:

- Receive continuous moisture value of soil from sensor
- Start water pump and send SMS when moisture is low
- Receive commands through SMS messages and take appropriate action
- Receive data from touch sensor and take appropriate action
- More such features

With my limited knowledge at the time, I first thought to run the above tasks using a 'while loop.' I implemented that and soon realised that the tasks did not function simultaneously. But they were to run all at once. After several hours of searching the web and experimenting, I implemented multiple Python scripts with SQL database integration.

I spent countless hours working to fix the problem. I do this out of immense passion rather than obligation. Therefore, I believe that attaining this award will boost my morale and help me to venture confidently into the world of uncertainty.