

Team Name : Mind bender

	Name	Branch and Semester	Contact Number	Email- ID
Team Leader	Shreyas K	ECE and 4 th sem	9380350390	krishnah60317@gmail.com
Member 1	-	-	-	-
Member 2	-	-	-	-
Transaction ID (anju.marina.lobo@oksbi)	P2002242249124778284187			

Note:

- One can participate either as a part of a team or an individual basis. Switching teams is not allowed.
- The uploaded ideas will be screened to go to the second round.
- Judging : competition entries shall be judged, or winners selected based on the following criteria
 - Is the problem worth solving
 - How innovative or novel is the idea
 - Scientific accuracy
 - Social impact
 - Scalability
- Decisions of IIC JSSSTU in respect of all matters to do with the competition will be final and no correspondence will be entertained.
- In second round, the selected teams will have to present their idea in front of the jury panel.
- Payment of INR 50 should be made to the UPI ID anju.marina.lobo@oksbi and submit the transaction ID above.
- Idea should be submitted in **.pdf** format.

Abstract: (not more than 150 words)

As various seasonal, economic and biological patterns influence the crop production. Catastrophic changes in these patterns may lead to a great loss to the farmers. These risks can be avoided by adopting smart farming methodologies i.e. incorporating technology in the day-to-day farming. The **Internet of things (IOT)** is remodelling the agriculture and enabling the farmers with the wide range of techniques such as precision and sustainable agriculture to face challenges in the field. IOT leverages farmers to get connected to his farm from anywhere and anytime. By adopting **wireless sensor networks** for monitoring the farm conditions and **bolt wifi** (microcontroller) for controlling and automating the farm processes. A smart phone empowers farmer to keep updated with the

ongoing conditions of his agricultural land using IOT at any time and any part of the world. The project mainly focuses on deriving useful insights on **crop-yield prediction, weather forecasting, crop type plantation, and crop cost forecasting**. The **statistical agricultural dataset** is undertaken for experimental analysis. The data is pre-processed and classified into training and testing data. Then suitable classification methods like Support Vector Machine (SVM) and Random forest are used for better classification outcome.

Introduction (not more than 200 words)

The modernization of agriculture is very important and can lead the farmers to get the good yield and make profit. But most of the farmers do not embrace technology and they work on a random basis. Numerous factors have an effect on their crops production that they're not aware of, any changes within the weather, the economy can cause severe injury to their crops. This has resulted in a situation where farmers have low financial gain and high debts and they end up committing suicide. This paper presents the concept of smart farming where agriculture is done by precisely managing data related to soil type, temperature, atmospheric pressure, humidity, and crop type field parameters in order to achieve optimized outputs at minimum disturbances to the environment. It is well known that climate is one of the foremost imperative field parameters that determine plant growth and its output. This is because each plant is susceptible to certain growing conditions such as air temperature, relative humidity, soil temperature, wind, and light, etc. Therefore, it is vital for farmers to understand these climatic conditions of their farms. Many problems related to managing farms and to maximize productions while achieving environmental goals can be solved with proper predictions.

Motivation (not more than 100 words)

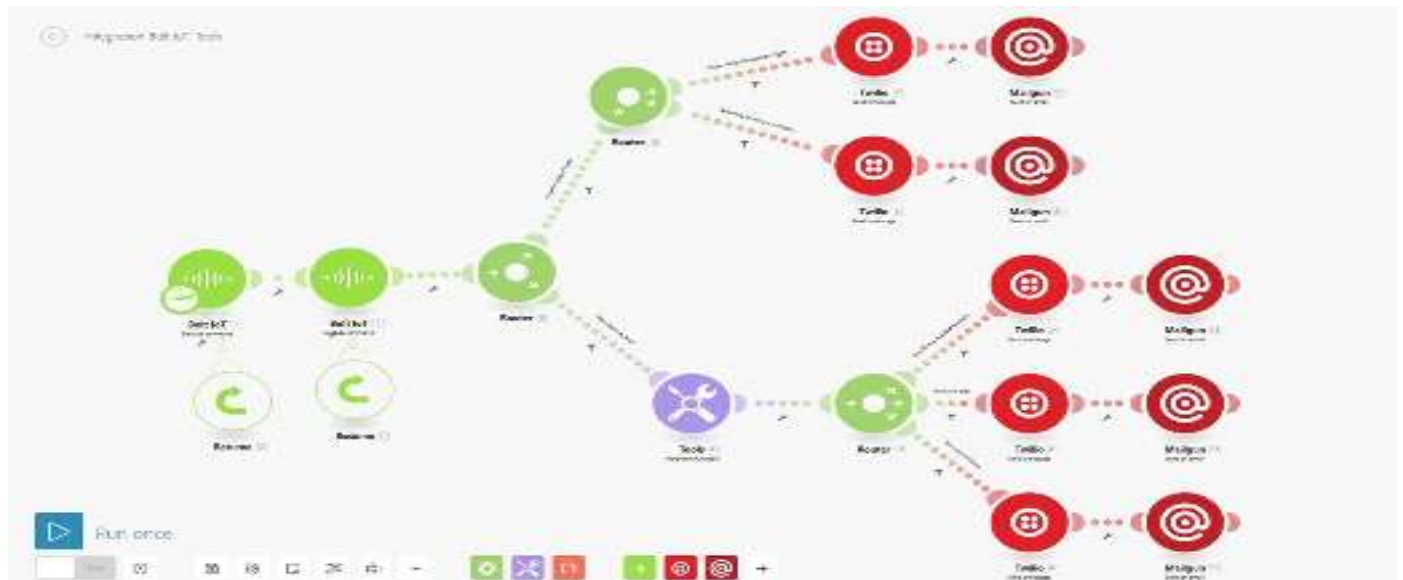
In this era, we have witnessed various technological advancements that are an answer to many problems in terms of time, quality, money or effort. Engineers are now collaborating with farmers to create a technological solution to factors affecting agriculture.

The Precision Agriculture model is a personalized solution for farmers to analyze and manage variability within fields for profitability. Agriculture has always been the most important sector for survival. There are a lot of difficulties faced by our farmers these days due to various unpredictable reasons. Hence, as engineers, we need to collaborate with farmers and provide them a solution to improve the quality and quantity of crops. Our project is the first step towards it. Prediction can help us make strategic decisions in crop production. With machine learning, we get insights about the crop life which can be very beneficial.

Methodology (block diagram, related figures etc)

Block Diagram :

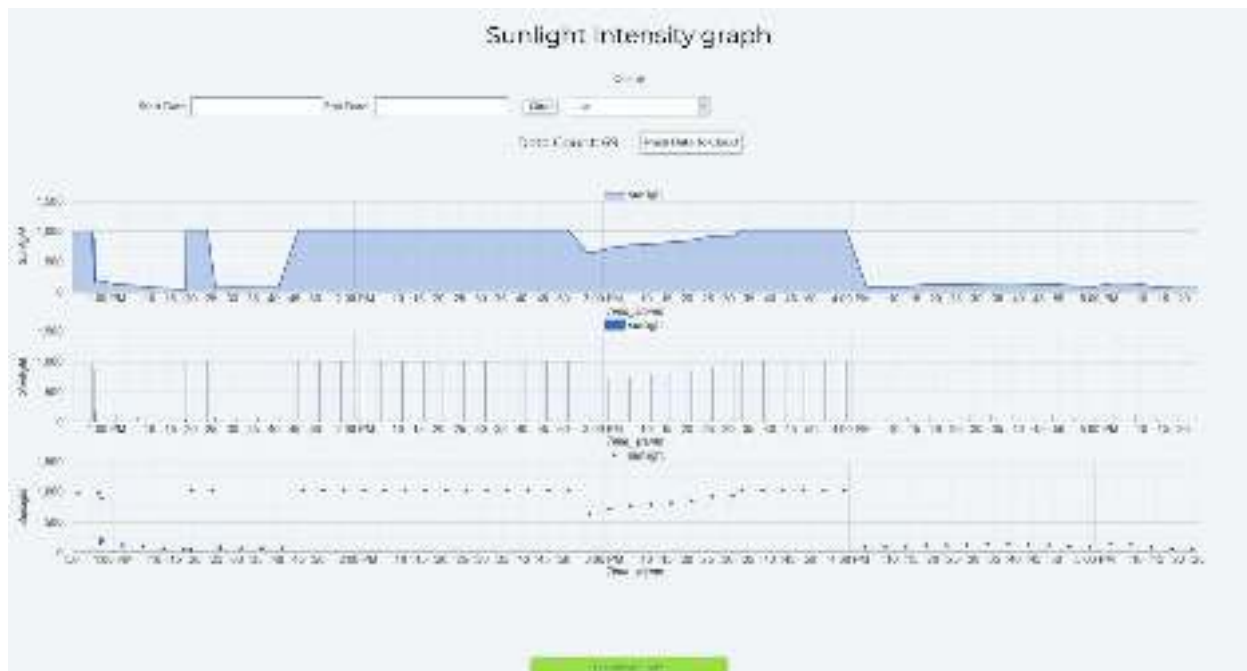
1. Flow Chart



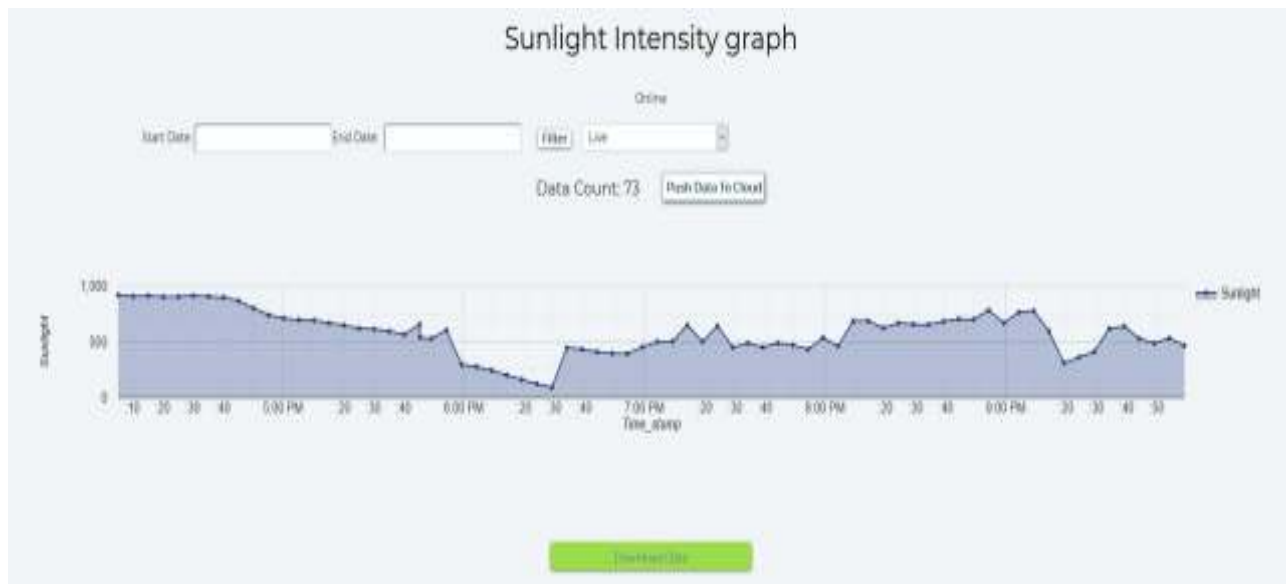
2. Data Flow Chart



3. Multiple Plot Chart



4. Data Visualization



Social Impact

Agriculture has always been the most important sector for survival. There are a lot of difficulties faced by our farmers these days due to various unpredictable reasons. Hence, as engineers, we need to collaborate with farmers and provide them a solution to improve the quality and quantity of crops. Our project is the first step towards it. Prediction can help us make strategic decisions in crop production. With machine learning, we get insights about the crop life which can be very beneficial.

As the smart farming methodologies increase, there would be a vast requirement for newer technologies to be implemented. The project which is now a web-based the application can be made into an app where farmers can be educated and informed about their crop yield. Once a prediction is done we can improve on the automation process where the farmers can remotely control the field using a mobile app.

Market Survey

The agriculture IOT market for services is expected to grow at a higher CAGR during the forecast period. . Service providers include companies that provide farm operation services, data services, and farm data analytics to software companies or directly to farmers. Analytics services help in providing right calls and alerts on farming operations to improve the farmers' decision-making capabilities. System integrator service providers are involved in troubleshooting and diagnosing farm management solutions, which also consists in developing new concepts related to software and hardware equipment.

IOT technology can address agriculture-based issues and optimize the quantity and quality of agriculture production, by connecting farms through a single platform and making them more intelligent by sharing, storing, and analyzing the information. The global IOT in agriculture market is estimated to grow at a notable CAGR of 14.7% from 2018 to 2025, due to lowered cost of technology as a result of ongoing R&D in IOT, and efforts by various governments of the countries across the globe to increase the quality and quantity of agriculture production.

