# Agricultural Field Monitoring System using IOT
## "The Lilly"

**PROJECT SYNOPSIS**

OF MAJOR PROJECT

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# **<u>Introduction</u>**

It's been long since sensors were introduced in the agriculture operations. But the problem with the traditional approach of utilizing sensor technology was that we were not able to get the live data from the sensors. The sensors used to log the data into their attached memory and later on we were able to use it.

With the introduction of Industrial IoT in Agriculture, far more advanced sensors are being utilized. The sensors are now connected to the cloud via cellular/satellite network. Which lets us to know the real-time data from the sensors, making decision making effective.

The advancement of IoT technology in agriculture operations has brought the use of sensors in every step of the farming process like how much time and resources a seed takes to become a fully-grown vegetable.

Internet of Things in Agriculture has come up as a second wave of green revolution. The benefits that the farmers are getting by adapting IoT are twofold. It has helped farmers to decrease their costs and increase yields at the same time by improving farmer's decision making with accurate data.

# Applicability of IOT in Agriculture

Smart Farming is a hi-tech and effective system of doing agriculture and growing food in a sustainable way. It is an application of implementing connected devices and innovative technologies together into agriculture. Smart Farming majorly depends on IoT thus eliminating the need of physical work of farmers and growers and thus increasing the productivity in every possible manner.

With the recent agriculture trends dependent on agriculture, Internet of Things has brought huge benefits like efficient use of water, optimization of inputs and many more. What made difference were the huge benefits and which has become a revolutionized agriculture in the recent days.

IoT based Smart Farming improves the entire Agriculture system by monitoring the field in real-time. With the help of sensors and interconnectivity, the Internet of Things in Agriculture has not only saved the time of the farmers but has also reduced the extravagant use of resources such as Water and Electricity. It keeps various factors like humidity, temperature, soil etc. under check and gives a crystal-clear real-time observation.

# "The Lily"

Presenting "The Lily", basically we are trying to show the working of the model using a small plant called "Lilly".

- Lily is a smart plant monitoring system specially designed for farmers to provide the information and keep a watch on their fields.
- These wireless small sized sensors can be placed anywhere in the field.
- This wireless hub and the sensor can be best described as a DIY sensor system designed to provide information about the different manner of variables in the fields.

**The following are the benefits of adopting new technology - Internet of Things in Agriculture:**

**1.Climate Condition**

> Climate plays a very critical role for farming. And having improper knowledge about climate heavily deteriorates the quantity and quality of the crop production. But IoT solutions enable us to know the real-time weather conditions. Sensors are placed inside and outside of the agriculture fields. We collect data from the environment which is used to choose the right crops which can grow and sustain in the particular climatic conditions.

The whole IoT ecosystem is made up of sensors that can detect real-time weather conditions like humidity, rainfall, temperature and more very accurately.

There is numerous no. of sensors available to detect all these parameters and configure accordingly to suit our smart farming requirements. These sensors monitor the condition of the crops and the weather surrounding them. If any disturbing weather conditions are found, then an alert is sent. What gets eliminated is the need of the physical presence during disturbing climatic conditions which eventually increases the productivity and help farmers to reap more agriculture benefits.

## 2.Precision Farming

> Precision Agriculture/Precision Farming is one of the most famous applications of IoT in Agriculture. It makes the farming practice more precise and controlled by realizing smart farming applications such as livestock monitoring, vehicle tracking, field observation, and inventory monitoring.

The goal of precision farming is to analyze the data, generated via sensors, to react accordingly. Precision Farming helps farmers to generate data with the help of sensors and analyze that information to take intelligent and quick decisions.

With the help of Precision farming, we can analyze soil conditions and other related parameters to increase the operational efficiency.

## 3.Data Analytics

> These systems are estimated to play an important role such that better activities can be performed. In the IoT world, sensors are the

primary source of collecting data on a large scale. The data is analyzed and transformed to meaningful information using analytics.

The data analytics helps in the analysis of weather conditions, livestock conditions, and crop conditions. The data collected leverages the technological innovations and thus making better decisions. Using predictive analytics, we can get an insight to make better decisions related to harvesting.

The trend analysis helps the farmers to know upcoming weather conditions and harvesting of crops. IoT in the Agriculture Industry has helped the farmers to maintain the quality of crops and fertility of the land, thus enhancing the product volume and quality.

## Design / Blueprint