

# **IOT BASED SMART CROP PROTECTION SYSTEM FOR AGRICULTURE**

## **LITERATURE SURVEY**

### **TEAM MEMBERS**

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According to **M.Anil**, In order to protect crop fields from high rains, this study suggests an IoT-based intelligent and secure crop field monitoring system. Raspberry Pi architecture is also featured. The raspberry pi is connected to a variety of sensors that make up the suggested overall architecture. Additionally, the private cloud is connected to the suggested raspberry pi architecture. The user has access to stored data through the private cloud at any time. The use of sound, temperature, and moisture sensors enables the collection of data that varies from plant to plant. In addition to the sensors, the syphon, which starts the flow of liquids through tubes, will be blocked if the moisture limit is reached or the temperature rises. But in addition to the raspberry pi and Internet of Things [IoT] architecture, the suggested framework has also coordinated the rainfall sensor, soil wetness sensor, temperature and pressure sensor for monitoring the temperature, and soil status. The rain sensor detects the rain, and based on that, the dc engine kicks in to shield the downpour brought on by severe rain and issues a warning to everyone near the agricultural field.

According to **G Dhanalakshmi**, Crops in farms are many times ravaged by local animals like buffaloes, cows, goats, birds, and fire etc. This leads to huge losses for the farmers. It is not possible for farmers to barricade entire fields or stay on field 24 hours and guard it. So here we propose automatic crop protection system from animals and fire. This is a arduino Uno based system using microcontroller. This system uses a motion sensor to detect wild animals approaching near the field and smoke sensor to detect the fire. In such a case the sensor signals the microcontroller to take action. The microcontroller now sounds an alarm to woo the animals away from the field as well as sends SMS to the farmer and makes call, so that farmer may know about the issue and come to the spot in case the animals don't turn away by the alarm. If there is a smoke, it immediately turns ON the motor. This ensures complete safety of crops from animals and from fire thus protecting the farmer's loss. This is a arduino Uno based system using microcontroller. This system uses a motion sensor to detect wild animals approaching near the field and smoke sensor to detect the fire. In such a case the sensor signals the microcontroller to take action.

According to **N.S Gokul Dev**, One of the primary issues facing farmers in our nation is low crop output. There are two basic causes for this. crops damaged as a result of severe weather and wild animals. This essay offers a remedy for agricultural destruction caused by animals. This system will give farmers a full technological answer using the Internet of Things (IOT) to protect their crops from wild animals and give them information to increase their output. PIR sensors and cameras are used to detect animals, and TensorFlow image processing techniques are used to identify the detected animals. The system's processing component is a Raspberry PI, and sound buzzers are utilised to transmit the ultrasound frequencies.

According to **P Naveentha**, Our project's primary goal is to prevent animal damage to crops while also diverting animals away from harm's way. Farm crops are frequently destroyed by neighbourhood animals including buffalo, cows, goats, birds, etc. For the farmers, this results in enormous losses. Farmers cannot block entire fields or remain on the field all day to secure it. Therefore, we suggest this approach for protecting crops automatically from animals. A system for detecting animals is intended to alert users of their presence. PIR and ultrasonic sensors were utilised in this project to provide signals to the controller and detect animal movement. By creating sound and a signal that is further transferred to GSM, it diverts the animal. This alerts the forest department and farmers right away.

According to **Stefano glordino**, Our daily lives are heavily reliant on technology. The need for Internet of Things (IoT) has increased significantly across many industries, which has attracted significant research interest from both the academic community and the business community. IoT adoption has facilitated smart farming and precision agriculture, to name a few, solely in the agriculture industry. In order to stop animals from entering the crop field, this paper describes the development of an Internet of Things application for crop protection. To guard against potential harm to agriculture from wild animal attacks and meteorological conditions, a repelling and monitoring system is offered.

According to **Mike ojo**, Farmers in the past frequently used the availability of soil to influence claims about better crop kinds. They are unconcerned with the humidity, water level, and notably the weather that increased the farmer's risk. By providing farmers with a wide range of tactics, such as precision and practical farming to meet sector difficulties, the Internet of Things (IoT) aims to redefine agriculture. Crop web-based surveys evaluate water quality, soil moisture level, moisture condition, and crop temperature. Modern IoT developments assist Conditions in the home are tracked using remote sensor properties. IoT development can reduce costs and stimulate normal growth productivity. Information on elements including weather, temperature, and soil fertility. IoT enables farmers to communicate about where, how, and where to stay.

According to **prof Linda Field**, The Smart Crop Protection programme is created to address these issues by utilising the most recent technological advancements to enhance biotic hazard detection, monitoring, prediction, and control. Understanding crop-pest interactions is our main concern, along with their genetics, ecology, evolution, and control. Using a systems-based strategy that blends chemical, genetic, and agroecological techniques, the SCP initiative will create crop protection strategies that enable more focused interventions. The goal of the initiative is to use less pesticides, prevent the emergence of pesticide resistance, and develop integrated, evidence-based strategies that protect crops in novel ways, minimise unexpected negative environmental effects, and ensure the long-term productivity of agroecosystems.

According to **Ipseeta Nanda**, developed to comprehend agriculture, which comes before low-power arrangements. A monitoring process for farm safety against animal assaults and climate change circumstances is produced by this study. Smart A centralised IIoT (Industrial Internet of Things) approach farming usually makes use of IIoT advancements to highlight the standard of agriculture. It includes many controls and sensors. The ARM Cortex-A board, which uses 3W, is the key component of the process for WSN. The ARM Cortex-A board is equipped with a variety of sensors, including a camera, PIR sensor, LDR sensor, HC-SR04 ultrasonic sensor, and DHT 11 humidity and temperature sensor. When there is movement within the range, the PIR raises, the camera begins to record, and the data is stored both on-board and in the IoT cloud. Immediately after the data is recorded, information is automatically generated using a SIM900A unit to alert. The outcome will be displayed on the user's mobile device's catalogue once the required action has been taken.

According to **Sanwar Hossain**, For the power/energy management department, remote monitoring and control of the sub-station equipment is a crucial issue. Normally, this is done manually or with the help of a costly PLC and SCADA system. A smart monitoring and trustworthy controlling system over the complete sub-station equipment is highly desirable in the age of the internet and computation, and this can be accomplished implementing the Internet of Things (IoT) technology. The Internet of Things (IoT) is a network of physical objects with electronics, software, sensors, actuators, and network

connectivity that can identify, gather, and exchange data. Each object has an embedded computing system that enables unique identification and allows for interoperability within the current internet infrastructure. To manage time and resources as effectively as feasible, this article developed an IoT-based network approach for monitoring and controlling the sub-station equipment. The IoT-based system makes it possible for objects to be sensed or controlled remotely across the existing network infrastructure, opening up opportunities for a more direct integration of the physical world into computer-based systems.

According to **Lizina Khatua**, It is disclosed a trespass recognition system for alerting a recipient of a potential trespass at a distance. The system includes a low bandwidth sensor network, a satellite transceiver for connecting to the low bandwidth wireless network, and an ultrasonic sensor with an additional processor for analysing the received sound to identify a predetermined type of object and on identifying at least one of the predetermined type of object in the received sound.