

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

## **IDEA 1:**

The objective behind the project is to design an automatic crop protection system which helps to detect fire and animals approaching near the field. This is an Arduino UNO based system using microcontroller. This system uses a motion sensor to detect the fire. In such a way the sensor, signals the microcontroller to take action. 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.

## **IDEA 2:**

The project is intended to provide proper amount of irrigation to agricultural fields by observing the moisture content of soil. The project automates the process of manually irrigating the fields by switching the pump ON/OFF. It is implemented by using an 8051 series microcontroller, programmed such as to collect input signals that measures moisture content of soil through sensing arrangement. Sensing arrangement is made by inserting two stiff metallic rods into the field at some distance. An op-amp is used as a comparator that interfaces microcontroller and the sensing arrangement. On receiving the signal, the microcontroller produces an output that drives a relay and operates the water pump. Also, LCD is used which is interfaced with microcontroller for displaying the moisture content of soil and water pump status. Hence the system reduces human intervention and provides required irrigation to field.

### **IDEA 3:**

Agriculture is the science and art of growing plants. Agriculture plays predominant position in the financial improvement of our country and this is the primary profession from many years. To extend the efficiency of the yields and to limit the costs of rural practices we go for smart techniques of agriculture by using IOT technology. Protection of crop during rainy season is major challenge for farmers. By incorporating Greenhouse technology, an environment condition for a crop to grown will created along the various features like sensor based totally monitoring, security, crop safety from excessive rain and automatic roof overlaying facility. Greenhouse is operated in two modes i.e, automatic mode and manual mode. It makes use of telegram app for communicating with the cultivators about various environmental factors continuously. Various sensor nodes are deployed at special locations in the greenhouse. Controlling those parameters are through any remote device or internet services and the operations are completed by means of interfacing sensors, with microcontroller. Power generation and supply is usually a massive problem. This project is also consisting of solar power generation and rainwater harvesting as technology method is implemented along with crop safety.