IoT Based Smart Crop Protection System for Agriculture

Description:-

This will be an integrative approach in the field of IOT designed for perceptive Agriculture which are proceeding the arrangements in course of open source and on low powers devices . This project work is to yield monitoring arrangement for farm safety against animal attacks and climate change conditions . Internet of Things (IoT) advances is frequently used in smart farming to emphasize the standard of agriculture . This project work contains various sorts of sensors, controllers in addition to positioner on behalf of WSN and ARM Cortex-A board which consumes 700mA or 3W power is the main temperament of the classification. Different sensors like DHT 11 Humidity & Temperature Sensor, PIR Sensor, LDR sensor, HC-SR04 Ultrasonic Sensor and cameras are interfaced with the board. IOT devices stay adept of in case evidence around farming grounds.

Low productivity of crops is one of the main problems faced by the farmers in our country. This can be because of two main reasons. Crops destroyed by wild animals and because of bad weather condition. This paper provides a solution to the destruction of crops by animals. This system will provide a complete technical solution using the Internet of things (IOT) to the farmers to prevent their crops from wild animals and provide information to the farmers to maximize their production. Animals are detected using PIR sensors and cameras where animals are identified using TensorFlow image processing Techniques. Raspberry PI is used as the processing unit of the system and sound buzzers are used to emit the ultrasound frequencies.

This paper presents the smart irrigation system using Internet of Things (IoT) via the Arduino Mega 2560. The objectives of this paper are to investigate the concept of smart irrigation system using IoT, to develop a system using an Arduino Mega 2560 that processes the data from the soil sensor which automatically water the plant and to analyse the real time condition of soil of the plants via the smart phone that is connected to the internet. The scope of the study is focused on farming crops and gardening. The limitations of this project can be very expensive if it is applied on a big area. It had to install the sensors for every plant as it is needed to know the condition of the soil. Water pump must also be added for every plant in order to supply the water. In this project, it requires blynk application software on the smartphone and hardware implementation which can detect the condition of the plant by using the dht 11 sensor and moisture level sensor. The findings of this paper are based on the experiments that were done. The first two experiments were between smart irrigation and normal irrigation. After 7 days, the results showed that smart irrigation topple the normal irrigation. Then, it proceeded to the next 3 experiments which are with the appearance of sunlight, pH values of the water and the windy condition. The conclusion of this paper is based on the objectives which all the three objectives had already achieved.

Central Intelligent Agency (CIA) fact book ranked India a number 2 out of 238 countries. India takes of 17% of world's population, but with 4% of fresh water resource. Out of which SO% of water is used for agriculture. Country like India, has very good natural resources, but not used in a congruous way. This lead to make water as an adequate resource. So it is time for us to utilized the available water in an efficient way and to amend the victuals productivity of the nation to compete with the world's growth. The most critical thing is to manage the water system with the available amount of water. In most of the agriculture lands the crops are over watered with out checking the soil dampness. This leads to the waste of water resource which can be utilized in some other areas where there is in need of water. Issue related water system are constantly obstructing the improvement of the nation. So to enhance the water management system, some of the smart techniques are evolved.

The paper is to present an internet of things (IOT) based smart irrigation system to identify the dampness in the soil and to control the watering of the crops automatically. The primary motivation behind the ventures to keep up soil dampness level so that there is no damage to the harvests. Soil dampness sensors fundamentally utilized for estimating the gauge volumetric water content. Microcontroller are utilized for getting the information from the water system sensors and after that pass the information on the web utilizing GPRS module. The most intriguing highlights of this activities are shrewd water system with brilliant control and around right choice dependent on the continuous field information. The controlling procedure of these tasks should be possible utilizing the remote sensors or framework associated with the Internet and every one of the activities should be possible by combining every one of the sensors, for example, WI-FI or THINGS SPEAK modules. Since much of the general population.

Irrigation is one of the traditional practice and involves higher percentage of laboursin daily agriculture sector. To water the plants automatically, sensors and Microcontrollers are available to determine when the plants needs water. Automation involves improving the speed of production, reduction of cost, effective use of resources. The main role of this project is to develop a Microcontroller system to irrigate the plant automatically and the information is been sent to the farmers. Agriculture in India is livelihood for a majority of the population and can never be underestimated. This project mainly focuses on IoT based smart irrigation system which helps to reduce the manual work and save the time of farmers. Monitoring environmental conditions is the key factor to improve the yield of crops and to grow seasonal crops. It involves automated checking of moisture, humidity, water level and temperature of the land under cultivation. Automatic irrigation facility is provided for irrigation if and when required. The smart irrigation system comes with different sensors that monitors the environmental conditions and gives the sensed outputs to Arduino board. The farmers can get the required information from the developed mobile application through Wi-Fi module. This system can be used even in small scale terrace gardening. The system is carefully deployed in such a way that everyone can easily follow the steps and procedures and feasible to everyone.

This paper aims to deliver a smart and cost-effective irrigation system. The main objective of this paper is to integrate a real-time monitoring system, remote controlling and cloud computation of acquired data. The system operates on some designated parameter ratings. Depending on the parameter values, the system executes actions such as switching the motor on and off. Adding to that, this paper also offers a user-friendly experience with the help of the mobile application which enables the users to operate the system. A website has also been developed for the user which contains various news and parameters related to agriculture in Bangladesh. Along with that it contains a manual guide of threshold parameter values for various crops. This will also help the user to Figure out if their surroundings are suitable enough for their desired agricultural system.

India has a population of more than a billion and its requirement for water increases each year as the demand for food increases hence management of water resources to sustain this massive population is of high importance. The agricultural sector, an important sector of our economy accounts for a good percentage of our nation's GDP and of the exports. With advancement in technology we can establish a system that automates the irrigation process such that there is efficient usage of water and create an ease of work load for the farmers. With embedded technology and Internet of Things, in this work we have designed IoT based automated irrigation system for the Indian scenario. Our system is able to deliver optimal water to the plants based on moisture, light and temperature levels which are obtained through sensors. The farmer will be able to monitor the parameters through the mobile app which is integrated with cloud storage. By analyzing and comparing previous year's data and our current data we are able to efficiently find a way to save water.

In the field of agriculture, precision agriculture is one of the most crucial aspects of countries with enormous populations, fertile land and water resources. Incorporation of smart irrigation will go a long way in enabling the countries to effectively and efficiently use the available water, further using the extra water for the barren lands. In this paper, an IoT-based smart irrigation system is used for building a smart Management device that efficiently uses the available water. The purpose of this Management device is to automatically manage time, avoid under-irrigation and over-irrigation issues, streamline water consumption, distribution and manage the water reserves. This device also employs the open-source clouds, fusion centers, sinks and field-deployed sensors for smart irrigation purposes. The performance is compared with that of other existing methodologies in terms of packet delivery ratio, packets sent to destination, network stability period and energy consumption. Based on the observations of the experimental results, it is identified that the proposed management device saves up to thirty percent of the energy and is seen to offer higher network stability. The proposed work can be used in various irrigation models like lateral move irrigation, surface irrigation, sprinkler irrigation and drip irrigation. The advantage of this management system is that it can be used in third-world countries where only 2G and 3G are available to develop their small farms.

IOT plays a major role in agricultural field This paper is mainly applied to agricultural field Smart irrigation and farming can help farmers to grow healthy plants. The existing system only checks the soil water stress and automates the process of watering. The paper is about IOT based smart farming and irrigation system. The ultimate agenda of this paper is to automate the process of watering to plants. This work helps us to know the values of various parameters such as humidity, moisture and temperature of plants and water them accordingly. The system consists of three sensors which sense the values of humidity, moisture and temperature of plants. If any of the values decreases the motor automatically turns on the water for plants. This is done using Arduino board, voltage regulator and relay which controls the motor. WIFI module is used to inform the user about the exact field condition. The various sensors send the values to the Arduino board which has been coded with if else conditions will further pass the commands to the relay which turns on or off the motor according to the

conditions given. If the sensor values are decreased, it turns on the motor else it turns off the motor. The ultimate significance of this paper is that most of the manual work is reduced and watering process is automated with the help of devices as a result of which healthy plants can be grown, Water and electricity usage are saved by this paper. Even elderly people can easily do farming. The paper has been used to grow a tomato plant and it was successfully grown by automatic process. This methodology with the use of IOT technology had made us achieve a healthy farming. Increase in agriculture also helps us to increase the economical state of the country.

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