

SMART FARMING - IOT ENABLED SMART FORMING APPLICATION

ABSTRACT:

IOT refers to a shared network of things that communicate with one another online. Smart agriculture is one of the key IOT applications. Water and fertiliser waste is decreased with smart agriculture, and crop output is increased. Here, a system combining sensors for temperature, humidity, and soil moisture is presented to keep an eye on crop fields. If the soil moisture is low, the irrigation system can be automated by watching these factors. Key words: IOT, cloud networking, and soil moisture sensor. IoT, or the Internet of Things, is essential to smart agriculture. Because IoT sensors may provide information about their agricultural fields, smart farming is a new concept. The goal of the article is to use IoT and smart agriculture using emerging technology. The main component to increase the production of productive crops is to monitor environmental conditions. This paper's feature involves employing CC3200 single chip-based sensors to monitor the temperature and humidity in agricultural fields. For centuries, farming has been the main kind of employment in our nation. Agriculture is currently being hampered by the migration of people from rural to urban areas. Therefore, we use IOT-based smart agriculture solutions to solve this issue. This project comes with a number of features, including GPS-based remote control monitoring, moisture and temperature sensing, intruder frightening, security, leaf wetness, and appropriate irrigation capabilities. It uses wireless sensor networks to continuously record the soil characteristics and environmental conditions. In different parts of the farm, different sensor nodes are installed. These characteristics can be controlled by any remote device or online services, and activities are carried out by connecting sensors, Wi-Fi, and cameras to microcontrollers. This idea was developed into a product that allows users to take pictures and send them via MMS to farmers' mobile devices over Wi-Fi.

LITERATURE SURVEY:

[1] **G. Sushanth, and S. Sujatha** - Smart agriculture is a novel concept since IoT sensors can offer information about agricultural regions and then act on it based on user input. The purpose of this study is to develop a smart agricultural system that utilises cutting-edge technologies such as Arduino, Internet of Things, and wireless sensor networks. Through automation, the research tries to take use of emerging technologies such as the Internet of Things (IoT) and smart agriculture. The capacity to monitor environmental factors is a critical component in increasing crop efficiency. The purpose of this study is to develop a system that can monitor temperature, humidity, wetness, and even the movement of animals that might damage crops in agricultural areas using sensors, and then send an SMS notification as well as a notification on the app developed for the same to the farmer's smartphone via Wi-Fi/3G/4G if there is a discrepancy. The system uses a duplex communication link based on a cellular Internet interface, which allows data inspection and irrigation schedule to be changed using an android app. Because of its energy independence and inexpensive cost, the gadget has the potential to be useful in water-scarce, geographically isolated areas.

[2] **Pakruddin B, Vishruth ND, Shreeshyam H S, Saurabh, Osama Mustaquim** - IoT devices enable all farms to be connected and share knowledge regarding farming from experienced users. The smart farm, embedded with IoT systems, can support a wide range of devices. Due to the deployment of connected farms, it can be easy to detect disease on crop or virus spread over farm using prediction technique. All sensors and actuators who are monitoring and growing the crops are connected through a gateway. The gateway is intern connected to a server called Mobius. It will communicate with expert farming knowledge system and control actuators to make farm suitable to grow crops. Prediction combined with KF: It is used to remove the noise present during communication. For prediction using KF, the nodes form a set of clusters. The cluster head will receive data from different parameters of environment from the leaf node.

- [3] **Swaraj Umredkar, Shubham Jadhav, Sakshi Dubey, Pranali Fasate, Roshan Fulwani, Dr. Trupti, Nagrare** - Experts have analysed collected data for finding correlation between environment work and yield for standard work. They are concentrated on crop monitoring information of temperature and rainfall is collected as initial spatial data and analyzed to reduce the crop losses and to improve the crop production. An IOT Based Crop-field monitoring an irrigation automation system explains to monitor a crop field system is developed by using sensors and according to the decision from a server based on sensed data, the irrigation system automated. By using wireless transmission, the sensed data forwarded towards to web server database. If the irrigation is automated, then that means if the moisture and temperature fields fall below the potential [4] range. The user can monitor and control the system remotely with the help of application which provides a web interface to user.
- [4] **Adithya Vadapalli, Swapna Peravali, Venkata Rao Dadi** - The Internet of things (IOT) are being revamping the agribusiness engaging the farmers by the expansive compilation of techniques, for instance, accuracy and conservative cultivation to go up against challenges in the field. Researchers have proposed different modalities for the agriculture sector with one or multiple technologies mentioned, e.g. irrigation system based on soil water measurement to decide irrigation amount of the water is described in. Which uses the Bluetooth model for the communication which has its own limitations like limited range and device accommodation. In the year of 2016, an author suggested scheduling in the power supply to the sensors which will help in improve energy efficiency. Use of IoT in agriculture is mentioned by an author in paper. However it shows lack of interoperability which is necessary when we talk about large agricultural fields. For comparison of energy consumption between two appliances, Jinsoohan has provided an approach in paper published in 2017. N.K. Suryadevara, S.C. Mukhopadhyay has used concepts of pervasive computing, data aggregation etc to monitor the environmental factors using Zigbee in their paper. However it might raise the issue of more power consumption, automation of agriculture as more nodes have been deployed. Approach to provide the real time information to the farmers about the land and crops is defined in the paper.
- [5] **Anand Nayyar and Er. Vikram Puri, November 2016** - This paper describes Internet of Things (IOT) technology has brought revolution to each and every field of common man's life by making everything smart and intelligent. IOT refers to a network of things which make a self-configuring network. The development of Intelligent Smart Farming IOT based devices is day by day turning the face of agriculture production by not only enhancing it but also making it cost-effective and reducing wastage. The aim / objective of this paper is to propose a Novel Smart IOT based Agriculture assisting farmers in getting Live Data (Temperature, Soil Moisture) for efficient environment monitoring which will enable them to do smart farming and increase their overall yield and quality of products.