SMART FARMER - IoT ENABLED SMART FARMING APPLICATION

INTRODUCTION:

The India is an agricultural country. Nowadays, at regular intervals the lands are manually irrigated by the farmers. There is a chance that the water consumption will be higher or that the time it takes for the water to reach the destination will be longer, resulting in crop dryness. Real-time temperature and humidity monitoring is crucial in many agricultural disciplines. However, the old method of wired detection control is inflexible, resulting in several application limitations. This project achieves irrigation automation as a crucial answer to this problem. This is accomplished with the aid of a Raspberry Pi, which controls the moisture and temperature sensors based on the input provided. Moisture sensors are used in the construction of an automated plant watering system for this purpose. The main aim of our project is to reduce the complexity of supervision and to avoid the continuous monitoring. We can accomplish smart agriculture using our system. This system includes IoT-based agricultural monitoring. The Internet of Things (IOT) is transforming the agriculture business and addressing the enormous difficulties and huge obstacles that farmers confront today in the field. The soil moisture sensor is put into the soil to determine whether the soil is wet or dry, and If the moisture level in the soil is low, the relay unit attached to the motor switch must be monitored on a regular basis. When the soil is dry, it will turn on the motor, and when the soil is moist, it will turn off the engine.

LITERATURE REVIEW:

Zuraida Muhammad, Muhammad Azri Asyraf Mohd Hafez, Nor Adni MatLeh, Zakiah Mohd Yusoff , Shabinar Abd Hamid   The term "Internet of Things" refers to the connection of objects, equipment, vehicles, and other electronic devices to a network for the purpose of data exchange (IoT). The Internet of Things (IoT) is increasingly being utilised to connect objects and collect data. As a result, the Internet of Things' use in agriculture is crucial. The idea behind the project is to create a smart agriculture system that is connected to the internet of things. The technology is combined with an irrigation system to deal with Malaysia's variable weather. This system's microcontroller is a Raspberry Pi 4 Model B. The temperature and humidity in the surrounding region, as well as the moisture level of the soil, are monitored using the DHT22 and soil moisture sensor. The data will be available on both a smartphone and a computer.   As a result, Internet of Things (IoT) and Raspberry Pi-based Smart

Agriculture Systems have a significant impact on how farmers work. It will have a good impact on agricultural productivity as well. In Malaysia, employing IoT-based irrigation systems saves roughly 24.44 percent per year when compared to traditional irrigation systems. This would save money on labour expenditures while also preventing water waste in daily needs.

Divya J., Divya M.,Janani V. Agriculture is essential to India's economy and people's survival. The purpose of this project is to create an embedded-based soil monitoring and irrigation system that will reduce manual field monitoring and provide information via a mobile app. The method is intended to help farmers increase their agricultural output. A pH sensor, a temperature sensor, and a humidity sensor are among the tools used to examine the soil. Based on the findings, farmers may plant the best crop for the land. The sensor data is sent to the field manager through Wi-Fi, and the crop advice is created with the help of the mobile app. When the soil temperature is high, an automatic watering system is used. The crop image is gathered and forwarded to the field manager for pesticide advice.

H.G.C.R. Laksiri, H.A.C. Dharmagunawardhana, J.V. Wijayakulasooriya Development of an effective IoT-based smart irrigation system is also a crucial demand for farmers in the field of agriculture. This research develops a low-cost, weather-based smart watering system. To begin, an effective drip irrigation system must be devised that can automatically regulate water flow to plants based on soil moisture levels. Then, to make this water-saving irrigation system even more efficient, an IoT-based communication feature is added, allowing a remote user to monitor soil moisture conditions and manually adjust water flow. The system also includes temperature, humidity, and rain drop sensors, which have been updated to allow remote monitoring of these parameters through the internet. In real time, these field weather variables are stored in a remote database. Finally, based on the present weather conditions, a weather prediction algorithm is employed to manage water distribution. Farmers would be able to irrigate their crops more efficiently with the proposed smart irrigation system.

Anushree Math, Layak Ali, Pruthviraj U[4] India is a country where agriculture plays a vital role. As a result, it's critical to water the plants wisely in order to maximise yield per unit space and so achieve good output. Irrigation is the process of providing a certain amount of water to plants at a specific time. The purpose of this project is to water the plants on the National Institute of Technology Karnataka campus with a smart drip irrigation system. To do this, the open source platform is used as the system's

fundamental controller. Various sensors have been employed to supply the current parameters of components that impact plant healthiness on a continual basis. By controlling a solenoid valve, water is provided to the plants at regular intervals depending on the information acquired from the RTC module. The webpage may be used to monitor and manage the complete irrigation system. This website contains a function that allows you to manually or automatically control plant watering. The health of the plants is monitored using a Raspberry Pi camera that gives live streaming to the webpage. The controller receives water flow data from the water flow sensor through a wireless network. The controller analyses this data to see if there are any leaks in the pipe. Forecasting the weather is also done to restrict the quantity of water given, making it more predictable and efficient.