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Smart Farmer Iot Enabled Smart Farming Application – Literature Survey

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1.Smart Agriculture Using Internet of Things with Raspberry Pi

Authors : Zuraida Muhammad,Muhammad azri Asyraf Mohd Hafez,Nor Adni Mat Leh,Zakiah Mohd Yusoff ,Shabinar Abd Hamid.

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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.

2.Smart Farming Iot based Future Agriculture

Authors : Vijaya Saraswathi R, Sridharani J, Saranya Chowdhary P,Nikhil K, Sri Harshitha M, Mahanth Sai K

Published Month & Year : January, 2022.

Agriculture is backbone of any country. About 60% of our country's population works in agriculture or the primary sector. It contributes more to our country's GDP. It employs the majority of India's population. The internet of things research presents a framework in which farmers may obtain extensive information on the soil, crops growing in specific areas, and agricultural yield and productivity. By utilizing resource optimization and smart planning, this technology-based farming solution will assist farmers in making wise agricultural decisions. The development of IOT based intelligent Smart Farming using smart devices is changing the agriculture production by not only increasing the quality and yield but also to make farming cost effective. The goal of this smart Agriculture or farming is to get live data like temperature, soil moisture and humidity to monitor the surrounding environment. All of this is accomplished with the use of temperature, humidity, and moisture sensors. The system being proposed by this paper is done using microcontroller and various sensors. This system is capable of monitoring the parameters in various soil conditions.

3.Smart Farming System Using Iot for Efficient Crop Growth.

Authors : M S D Abhiram, Jyothsnavi Kuppili, N.Alivelu Manga

Published Month & Year : May, 2020.

Smart agriculture is a farming system which uses IoT technology. This emerging system increases the quantity and quality of agricultural products. IoT devices provide information about nature of farming fields and then take action depending on the farmer input. Climate changes will have significant impact on agriculture by increasing water demand and limiting crop productivity in areas where irrigation is most needed. Irrigation system, rain fed agriculture, groundwater irrigation are some of the methods introduced to produce healthier crops which may not use water efficiently. In order to use water efficiently a smart system is designed. In the system farmer need not make the water flow into fields manually, but the system automatically does that efficiently. In this paper, an IoT based advanced solution for monitoring the soil conditions and atmosphere for efficient crop growth is presented. The developed system is capable of monitoring temperature, humidity, soil moisture level using NodeMCU and several sensors connected to it. Also, a notification in the form of SMS will be sent to farmer's phone using Wi-Fi about environmental condition of the field. In this paper, the system uses few sensors which gives the amount of moisture in the soil, the humidity and temperature of the region, and a rain detecting sensor which and can be used in deciding whether the crop is suitable for growing. All these sensors along with NodeMCU are connected to the internet and a smartphone.

4.An Systematic Approach on Monitoring and Advanced Control Strategies in Smart Agriculture.

Authors: Syeda Iqra Hassan,Muhammad Mansoor Alam,Usman Illahi,Mohammed A.Al Ghamdi,Sultan H.Almotiri,Mazliham Mohid Su'ud.

Published Year & Month : January, 2021.

Automation in agriculture nowadays is the main focus and area of development for various countries. The population rate of the world is increasing rapidly and will be double in upcoming decades and the need of food is also increasing accordingly. To meet this rapid growth in demand, agriculture automation is the best solution. Improper use of nutrients, water, fertilizers and pesticides disturbs the agricultural growth and the land remains barren with no fertility. This research paper presents different control strategies used to automate agriculture such as: IoT, aerial imagery, multispectral, hyperspectral, NIR, thermal camera, RGB camera, machine learning, and artificial intelligence techniques. Problems in agriculture like plant diseases, pesticide control, weed management, irrigation and water management can easily be solved by different automated and control techniques mentioned above. This research paper reviews and observe the work of different researchers to present a brief summary about the trends in smart agriculture and also provides the work flow and revenue of smart agriculture system in figure 15 using technologies verified by researchers in their research papers.

5.Iot Based Smart Irrigation Monitoring and Controlling System

Authors :Shweta B Saraf,Dhanashri H.Gawali.

Published Month & Year : January, 2018.

Interconnection of number of devices through internet describes the Internet of things (IoT). Every object is connected with each other through unique identifier so that data can be transferred without human to human interaction. It allows establishing solutions for better management of natural resources. The smart objects embedded with sensors enables interaction with the physical and logical worlds according to the concept of IoT. In this paper proposed system is based on IoT that uses real time input data. Smart farm irrigation system uses android phone for remote monitoring and controlling of drips through wireless sensor network. Zigbee is used for communication between sensor nodes and base station. Real time sensed data handling and demonstration on the server is accomplished using web based java graphical user interface. Wireless monitoring of field irrigation system reduces human intervention and allows remote monitoring and controlling on android phone. Cloud Computing is an attractive solution to the large amount of data generated by the wireless sensor network. This paper proposes and evaluates a cloud-based wireless communication system to monitor and control a set of sensors and actuators to assess the plants water need.