V.S.B ENGINEERING COLLEGE, KARUR

ELECTRONICS AND COMMUNICATION ENGINEERING

IBM NALAIYA THIRAN

IDEATION

Title: Smart Farmer - IoT Enabled Smart Farming Application

Domain: Internet of things

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IDEAS:

1. Agriculture is done in every country from ages. Agriculture is the science and art of cultivating plants. Agriculture was the key development in the rise of sedentary human civilization. Agriculture is done manually from ages. As the world is trending into new technologies and implementations it is a necessary goal to trend up with agriculture also. IOT plays a very important role in smart agriculture. IOT sensors are capable of providing information about agriculture fields. we have proposed an IOT and smart agriculture system using automation. This IOT based Agriculture monitoring system makes use of wireless sensor networks that collects data from different sensors deployed at various nodes and sends it through the wireless protocol. This smart agriculture using IOT system is powered by Arduino, it consists of Temperature sensor, Moisture sensor, water level sensor, DC motor and GPRS module. When the IOT based agriculture monitoring system starts it checks the water level, humidity and moisture level. It sends SMS alert on the phone about the levels. Sensors sense the level of water if it goes down, it automatically starts the water pump. If the temperature goes above the level, fan starts. This all is displayed on the LCD display module. This all is also seen in IOT where it shows information of Humidity, Moisture and water level with date and time, based on per minute. Temperature can be set on a particular level, it is based on

the type crops cultivated. If we want to close the water forcefully on IOT there is button given from where water pump can be forcefully stopped.

2. The food shortage and the population growth are the most challenges facing sustainable development worldwide. Advanced technologies such as artificial intelligence (AI), the Internet of Things (IoT), and the mobile internet can provide realistic solutions to the challenges that are facing the world. Therefore, this work focuses on the new approaches regarding smart farming , where the work illustrates the data gathering, transmission, storage, analysis, and also, suitable solutions. IoT is one of the essential pillars in smart systems, as it connects sensor devices to perform various basic tasks. The smart irrigation system included those sensors for monitoring water level, irrigation efficiency, climate, etc. Smart irrigation is based on smart controllers and sensors as well as some mathematical relations. In addition, this work illustrated the application of unmanned aerial vehicles and robots, where they can be achieved several functions such as harvesting, seedling, weed detection, irrigation, spraying of agricultural pests, etc.
3. A Smart Farming and "Crop Monitoring Technology" Using IOT in Agriculture. Agriculture is basic source of livelihood People in India. It plays major role in economy of country. But now a days due to migration of people from rural to urban there is hindrance in agriculture. Monitoring the environmental factor is not the complete solution to increase the yield of crops. There are no of factors that decrease the productivity to a great extent. Hence Automation must be implemented in agriculture to overcome these problems. An automatic irrigation system thereby saving time, money and power of farmer. The Traditional Farm land irrigation techniques require manual intervention. With the automated technology of irrigation the human intervention can be minimized. Continuous sensing an monitoring of crops by convergence of sensors with Internet of things (IOT) and making farmers to aware about crops growth, harvest time periodically and in turn making high productivity of crops and also ensuring correct delivery of products to end, consumers at right place and right time. So to overcome this problem we go for smart agriculture technique using IOT. This Project includes sensors such as temperature, humidity, soil moisture and rain detector for collection the field data and processed. These sensors are combined with well established web technology in the form of wireless sensor network to remotely control and monitor data from the sensors.
4. Agriculture is considered as the basis of life for the human species as it is the main source of food grains and other raw materials. It plays vital role in the growth of country's economy. It also provides large ample employment opportunities to the people. Growth in agricultural sector is necessary for the development of economic condition of the country. Unfortunately, many farmers still use the traditional methods of farming which results in low yielding of crops and fruits. But wherever automation had been implemented and human beings had been replaced by automatic machineries, the yield has been improved. Hence there is need to implement modern science and technology in the agriculture sector for increasing the yield. Most of the papers signifies the use of wireless sensor network which collects the data from different types of sensors and then send it to main server using wireless protocol. The collected data provides the information about different environmental factors which in turns helps to monitor the system. Monitoring environmental factors is not enough and complete solution to improve the yield of the crops. There are number of other factors that affect the productivity to great extent. These factors include attack of insects and

pests which can be controlled by spraying the crop with proper insecticide and pesticides. Secondly, attack of wild animals and birds when the crop grows up. There is also possibility of thefts when crop is at the stage of harvesting. Even after harvesting, farmers also face problems in storage of harvested crop. So, in order to provide solutions to all such problems, it is necessary to develop integrated system which will take care of all factors affecting the productivity in every stages like; cultivation, harvesting and post harvesting storage.

BEST IDEA:

The food shortage and the population growth are the most challenges facing sustainable development worldwide. Advanced technologies such as artificial intelligence (AI), the Internet of Things (IoT), and the mobile internet can provide realistic solutions to the challenges that are facing the world. Therefore, this work focuses on the new approaches regarding smart farming , where the work illustrates the data gathering, transmission, storage, analysis, and also, suitable solutions. IoT is one of the essential pillars in smart systems, as it connects sensor devices to perform various basic tasks. The smart irrigation system included those sensors for monitoring water level, irrigation efficiency, climate, etc. Smart irrigation is based on smart controllers and sensors as well as some mathematical relations. In addition, this work illustrated the application of unmanned aerial vehicles and robots, where they can be achieved several functions such as harvesting, seedling, weed detection, irrigation, spraying of agricultural pests, etc.

SOLUTION:

1.Precision Agriculture:

Precision agriculture is a farming management approach that uses digital technologies to enable farmers to **make better decisions** about where, when, and how much to fertilize, irrigate, and spray pesticides.By using **sensors to collect data** on weather, soil moisture, crop health, and real-time locational asset tracking (RTLAT), farmers can make more informed decisions about how to care for their crops.

2.Crop Monitoring:

Crop monitoring involves the use of sensors, drones, and satellites to **monitor crop health and identify locations requiring attention**. Crop monitoring systems also include all data such as crop health, humidity, rainfall, temperature, and more.

3.Irrigation Management:

Irrigation management uses sensors to detect **when and how much water is needed by individual plants**. This saves water and also reduces weeds and runoff.

4.Smart Pest Control:

Sensors **detect the presence of pests** and then dispense pesticides as required to protect crops. This helps reduce pesticide usage and can be used with smart irrigation management for targeted spraying only where it is needed.

5.Fertilizer Management:

When fertilizer gets too low, sensors notify farmers so they can use a crop-yield map to **determine which areas need more fertilizer**. They can also track how much fertilizer has been used by each plot or farm throughout the season. This reduces costs and keeps runoff to a minimum, reducing environmental damage.