A Robotic System for Environment Monitoring System Based on IOT and Data Analytics using Machine Learning Algorithm.

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***Abstract*- Internet of things has inhibited many parts of our modern-day lifestyles impacting the simplest to the most complex of our daily activities. Ranging from smart homes, smart water and even smart living, now even farming has been made easier by the intervention of technology. Traditional agricultural monitoring systems generally use static sinks to collect data that are often accompanied with some problems such as high construction costs, low precision, poor maintainability and so on. The advice module of the web application is designed to provide users with countermeasures that ensure humidity and temperature is within the ideal range for plant growth. The experimental results show that an MS can gather data from a large number of lands in a short time, with excellent scalability and stable operability. A smart agricultural management platform used to collect information on farming conditions (e.g., light intensity, humidity, and temperature) with the aim of enhancing crop productivity. Agricultural damage caused by birds and rodents presents a huge blow towards a country's economy. This system should allow farmers to control it wirelessly via the internet. A smart agricultural management platform that uses a MS which consists of gateway is designed and implemented. In this way, agricultural data collection has become quick and easy.**

***Key Words*: IOT (Internet of Thing), Robot, Sensors.**

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1. INTRODUCTION

A smart agricultural management platform used to collect information on farming conditions (e.g., light intensity, humidity, and temperature) with the aim of enhancing crop productivity. Agricultural damage caused by birds and rodents presents a huge blow towards a countrys economy. This system should allow farmers to control it wirelessly via the internet. Design and implement a smart agricultural management platform that can be divided into three layers: perception layer, network layer and application layer. In perception layer, a large number of zigbee sensor nodes (sns) are deployed to build zigbee networks. In network layer, a mobile sink (MS) that consists of a gateway carried is used to gather data from the perception layer and send it to application layer. Deploy a fullfeatured web application in application layer to provide various kinds of services for users. A smart agricultural management platform that use a MS which consists of an a gateway , is designed and implemented. In this way, agricultural data collection has become quick and easy.[1] Farming contributes a major income to the Malaysian economy. It is a huge concern to farmers when they are away from their crops and exposing it to crops threat such as crow damaging the crops and theft. Farming has contributed to nearly up to 22 percent of a countrys Gross Domestic Product (GDP) and due to this fact, countries are trying to their best to keep the industry safe. Due to that cause, countries has been spending billions in order to safe keep their farms and in the long run, this is a heavy blow towards the country itself.

2. PURPOSE

Smart Agriculture farming is growing in importance due to the combination of the expanding global population, the increasing demand for higher crop yield, the need to use natural resources efficiently, the rising use and sophistication of information and communication technology and the increasing need for climate-smart. Agriculture plays a critical role in the entire life of a given economy. Agriculture is the backbone of the economic system of a given country. In addition to providing food and raw material, agriculture also provides employment opportunities to a very large percentage of the population.

3. EXISTING SYSTEM

The Design and Implementation of Smart Agricultural
Management Platform Based on Wireless Sensor Network Traditional agricultural monitoring systems generally use static sinks to collect data that are often accompanied with some problems such as high construction costs, low precision, poor maintainability and so on. In this paper, we design and implement a smart agricultural management platform that can be divided into three layers: perception layer, network layer and application layer. In perception layer, a large number of ZigBee sensor nodes (SNs) are deployed to build ZigBee networks. In network layer, a mobile sink (MS) that consists of a gateway carried by an is used to gather data from the perception layer and send it to application layer. Besides, we deploy a fullfeatured web application in application layer to provide various kinds of services for users. The advice module of the web application is designed to provide users with countermeasures that ensure humidity and temperature are within the ideal range for plant growth. The experimental results show that an MS can gather data from a large number of lands in a short time, with excellent scalability and stable operability. These advantages allow the platform to apply very well to certain areas of particular terrain and it also alleviate the energy hole problem in the wireless sensor networks that use static sinks.

4. LITERATURE SURVEY

1. Internet of Things is the most effective area of research where sensor nodes and smart devices can collect the information from different sources and communicate it with the server without human involvement
2. With the deep integration of modern technology and agricultural production, the development of unmanned farms
3. In this work we present a WSN architecture for precision agriculture. The network is built on a star configuration with two protocols of connectivity: NB-IoT for the gateway and LoRa for sensor nodes
4. This paper provides a detailed review of how the sensor network is being used in agriculture where the transfer of data is done by the Zigbee and the data is stored in the microcontroller
5. Smart farming practices are inspired by sensing technologies, the main variables to be measured are soil and climate.
6. In this paper, we propose a joint sparse recovery algorithm, the Joint Fast Matching Pursuit (JFMP), considering the JSM-I sparsity model commonly encountered in WSN and IoT

applications

7. The government of India has taken significant measures with immediate attention to revolutionizing the effectiveness of advanced training in flourishing agricultural infrastructure
8. The environmental monitoring is particularly important in the agricultural sector to avoid or limit destructive phenomena or problems for human activities.

5. PROPOSED SYSTEM

Smart Agriculture farming is a big leap from traditional farming as it brings certainty and predictability to table. Robotics, automation and cloud software systems are tools for smart farming. Robotics, drones and sensor equipment placed throughout the farms can collect data and this data is processed to produce farm insights. Smart Agriculture farming solutions work through sensors. Farmers can monitor various conditions like soil moisture, water level, light, humidity, obstacles, and motion from anywhere by combining sensors, motion detectors, button camera, and wearable devices. With the help of IoTbased farming applications.

6. SYSTEM ARCHITECTURE

In the current scenario, there are the various hardware platforms available as shown above. Above these the Operating Systems reside. The application programming interfaces are above the Operating Systems and provide the interaction between the applications built on them and the underlying Operating System and the Hardware Platform. There layer above the API is occupied by the Smart Agriculture System framework on which the applications are proposed to be built. Following is the detailed description of each layer.

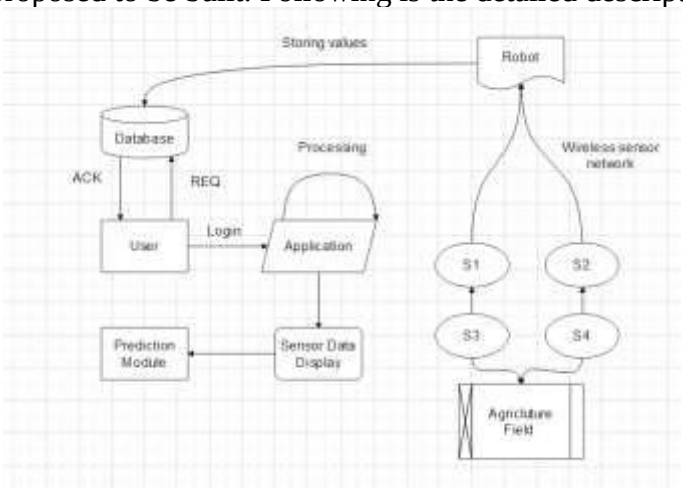


Fig -4.1: System Architecture Diagram

7. ADVANTAGES

Following are some more advantages of Smart Agriculture Framework:

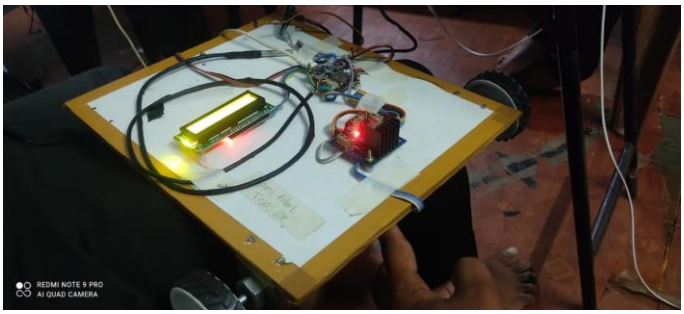
- Smart agriculture use Robots which helps in wireless in many ways, these improve data collection process and helps in wireless monitoring and control.
- Water conservation: weather predictions and soil moisture sensors allow for water use only when and where needed.
- Real-time data and production insight: farmers can visualize production levels, soil moisture, sunlight intensity and more in real time and remotely to accelerate decision making process.
- Increased quality of production analyzing production quality and results in correlation to treatment can teach farmers to adjust processes to increase quality of the product.
- Smart farming systems reduce waste, improve productivity and enable management of a greater number of resources through remote sensing.

8. APPLICATION:

The Smart Agriculture framework can be used in following areas:

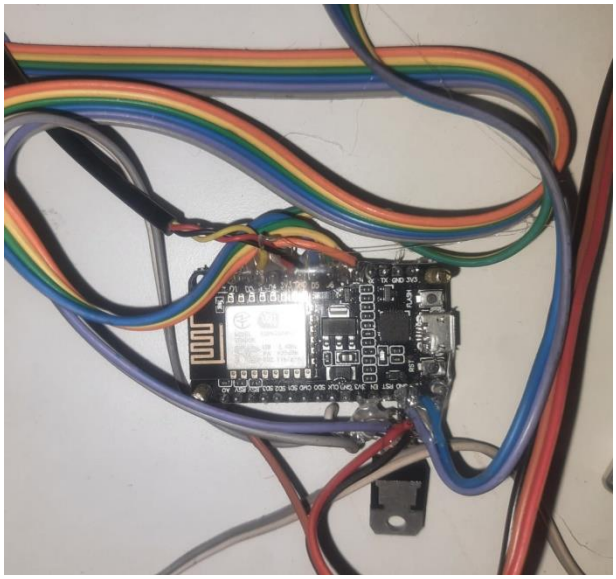
- Flower Nursery
- Big Agriculture area
- Forest

9. RESULT



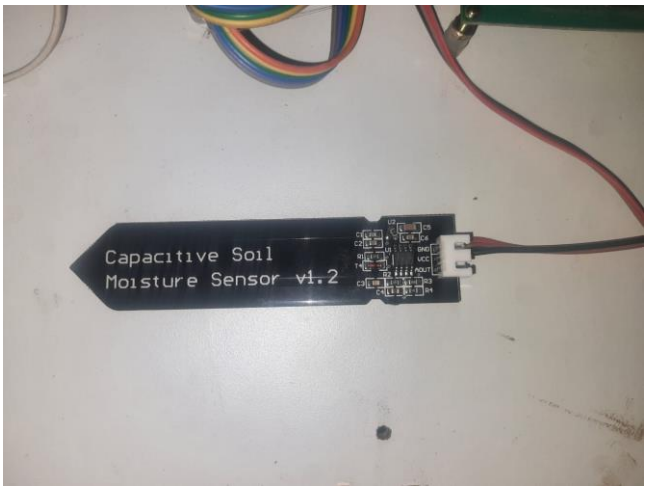
Temperature sensor

Temperature sensors assess greenhouses' humidity, light, and other elements. For example, if farmers want to grow tomatoes in their greenhouses, but the temperature is too low for them to grow properly, they can use a sensor to detect when the temperature drops below a certain level.



Node MCU

The term "NodeMCU" by default refers to the firmware rather than the dev kits .working with this chip super easy and a lot of fun. We took a certified module with an onboard antenna, and plenty of pins, and soldered it onto our designed breakout PCBs. While this chip has been very popular, it’s also been very difficult to use. Most of the low-cost modules. ESP8266 Wi-Fi chip using Arduino IDE, for which installation of ESP8266 library is required. We designed to make



Soil Sensor

Soil moisture sensors measure or estimate the amount of water in the soil. These sensors can be stationary or portables such as handheld probes. Stationary sensors are placed at the predetermined locations and depths in the field, whereas portable soil moisture probes can measure soil moisture at several locations.

TCD Display

It is use for display the result of soil, temperature sensor.

10. CONCLUSION

The capabilities of technology have been shifting forward together with time and its intervention has been helpful. Applying technology in the agriculture sector has significantly enhanced the countrys agriculture sector. Agricultural monitoring is needed to reduce the need for human intervention in farming. The outcomes help us to understand more about the significance of each variable to obtain healthy plants. This achievement leads to a smart farming management.

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