SMART FARMING WITH IOT

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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 have 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 countrys 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.**

***Keywords*: IOT (Internet of Thing).**

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 full-featured 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 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.

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.

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 full-featured 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.

1. 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 IoT-based farming applications.

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.

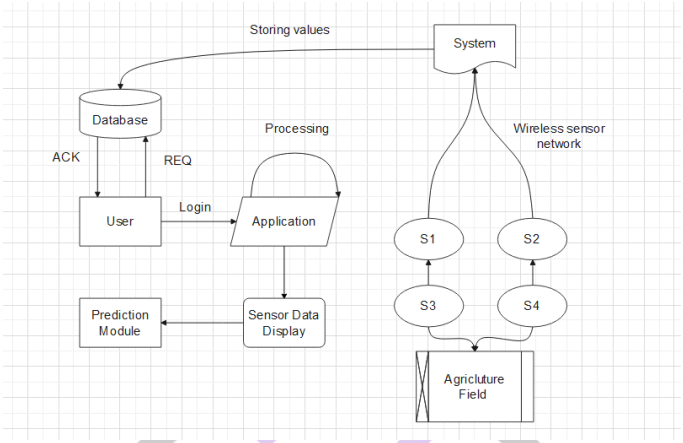


Fig -1: System Architecture Diagram

ADVANTAGES

Following are some more advantages of Smart Agriculture Framework:

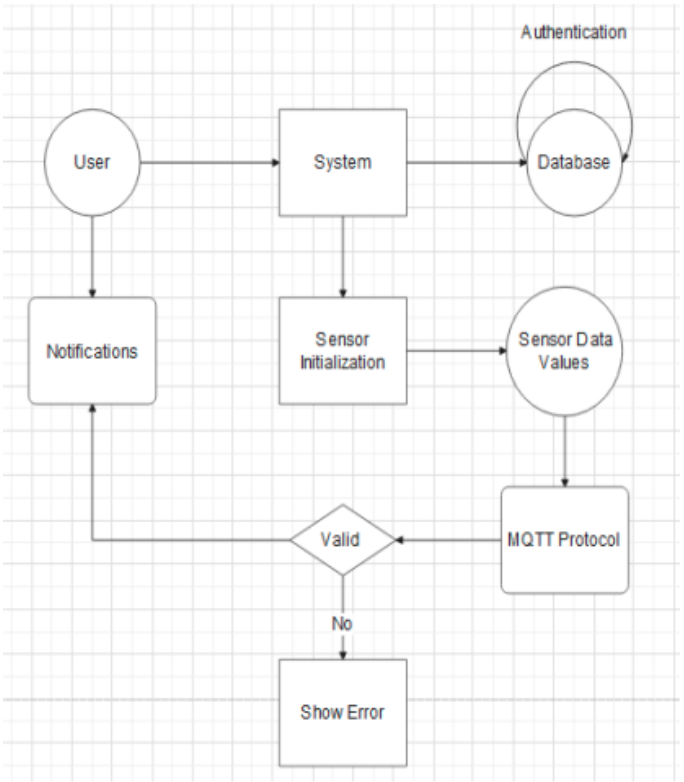
- Smart agriculture use Robots which helps in wireless in many ways, these improve data collection process and helps in wireless monitoring and control.
- Water conservation: weather predictions and soil moisture sensors allow for water use only when and where needed.
- Real-time data and production 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.

APPLICATION:

The Smart Agriculture framework can be used in following areas:

- Flower Nursery
- Big Agriculture area
- Forest

DATA FLOW DIAGRAM



METHODOLOGY

This section describes the various features of the Smart Agriculture application and also describes the implementation methods. Following are some of the features explained with their implementation details:

- Android 5.1: Android 5.1 adds support for using more than one cellular carrier SIM card at a time. This feature lets users activate and use additional SIMs on devices that have two or more SIM card slots. You can access information about the currently active SIM through the Subscription Manager class, including whether or not the device is considered to be roaming on the current network. This information is useful for developers who want to throttle their apps' data access down or off for device users who are sensitive to data access charges.

- Application: The Application provides the user/farmer to assess the detailed information using the framework app. The user has to select login option and proceed to next option. At the end of the farm result is displayed and also the user can verify the records datewise. The android version 5.1 is used for storing the data on sd card. By clicking on the next button the next option and associated options are retrieved.

CLASS DIGRAM

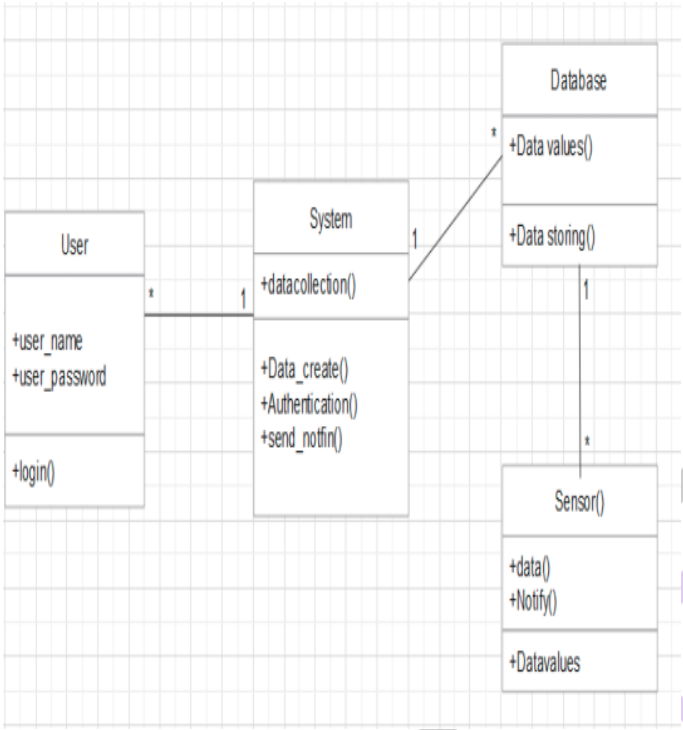
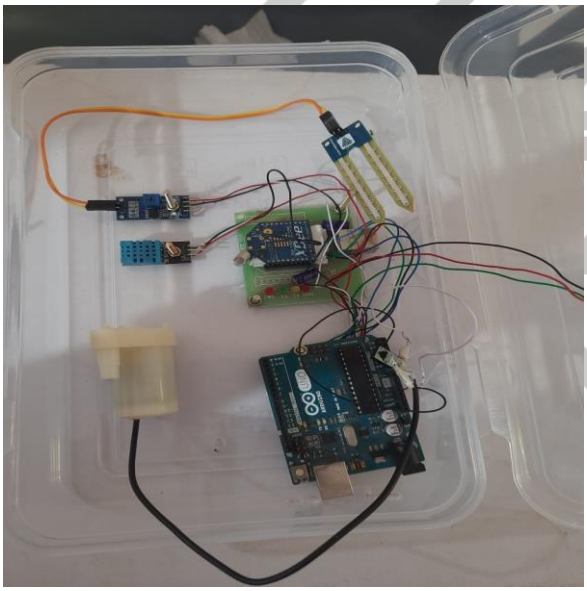
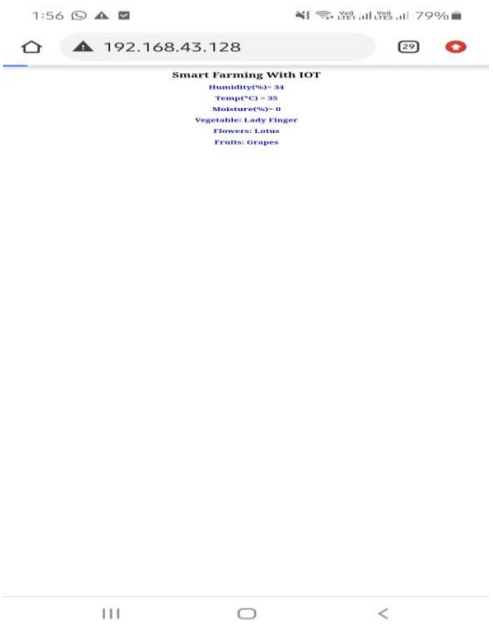


Fig- Class Diagram

Results:





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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