IOT BASED SMART AGRICULTURE SYSTEM

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ABSTRACT

The objective of this project is to develop and design a IoT irrigation system with help of blynk app. Due to the change in the climatic conditions prevailing it is very challenging to monitor and maintain plants. There are several approaches followed to monitor and control the growth of plants. The climatic conditions play a vital role in growing the plants. Plants need regular watering, manure supply and proper irrigation methods for different climatic conditions. The growth of the plant depends also on the type of the soil used. It's being done manually by farmers in rural areas of Sultanate of Oman and there is no sufficient guidance to properly educate them. So it is very essential to have an automatic system to deal with all these. The solution to achieve all those is an implementation of green house. This paper proposes an IoT based pant monitoring system to establish a greenhouse to maintain all the above-mentioned suggestions for indoor plants (echo house) to get best environment experience. This would drive the people to be confidence and would help to build an integrated environment of the agroindustry. The main purpose of agriculture monitor system is water consumption, improve plant condition by measuring level of water automatically to take care of plants that will save money and time. IoT is a technology that provide assist to the humanity smart irrigation system help farmers to get live data of (soil temperature and water) for best farming environment that can be done through Arduino Technology with multiples of sensors to read data sanding it to dashboard to be presented. All the information required for this project has been collected with the help of questionnaires, books, interviews and through the Internet to achieve all the requirements of the system.

Keywords: IoT, Smart agriculture, Arduino, sensors

Introduction

The Aim of project is to develop a Smart agriculture for Plants target is eco houses the goal is to complete watering method in vasa. That lead for better environment that well encourage the studies and research on plants, water and soil. The main purpose of agriculture monitor system is water consume, improve plant condition by measure level of water no need for expert to take care of plants that will save you money and time.

Literature review

Literature review depending to some books of MDPI are drive company in the right place of open technical starting build research on the irrigation application of internet of things technology for live controlling of soil moisture, also analysis of support systems (Zhang et al, 2017).

Intelligent in farming by Jayaraman with grouping of author shows that the internet of things platform can grouped and associate information such as the surrounding environment, soil and agriculture and it is performance. More

important, internet of things platform can collaborate into camera, sensor and etc. Data stored to cloud base for analysis of best in functioning (Jayaraman et al, 2016).

Another research reports what can be used in WiFi sensor architecture in irrigation and avidity of farmers with big numbers of information. irrigation is a term that uses an intelligent of algorithms that used recent information to improve quality, production and efficiency. Record WiFi sensors hurt by high energy consumption (Jawad et al, 2017).

Methodology

Methodology employed to perform the survey. presents the water management strategies utilized in now days studies, the argument that are apply to determine the irrigation schedule. The parameters and sensors considered for the soil monitoring face of the evaluated smart irrigation systems are depicted in the most monitored weather parameters and the sensors that monitor them are presented in comments on the most utilized nodes for IoT and WSN irrigation systems and the most known wireless technologies and cloud base platform. The studies go's trend in to IoT crop irrigation systems is presented in. Lastly, the future work is showed in.

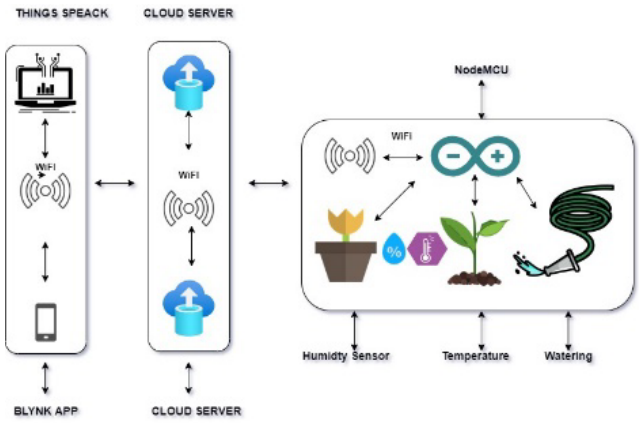

Figure 1: Block structure of smart irrigation

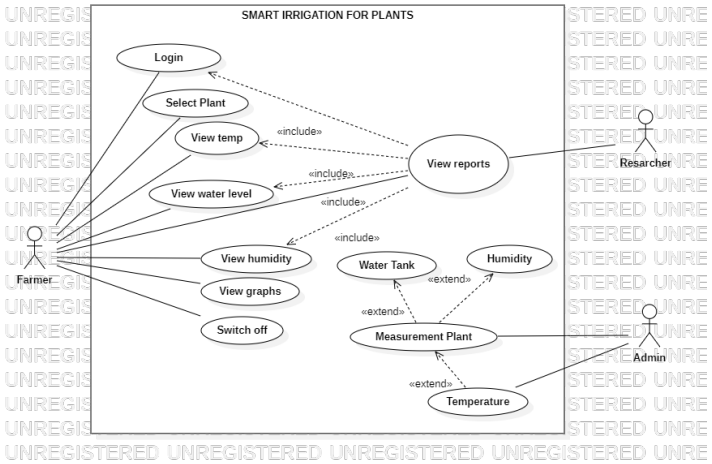

Figure 2: Use Case Diagram

This figure shows Agile Methodology

Feasibility analysis

SCREEN SHOT

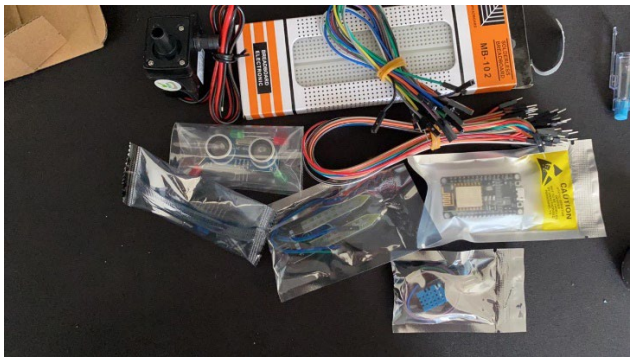

Figure 3: Screen of some hardware of irrigation

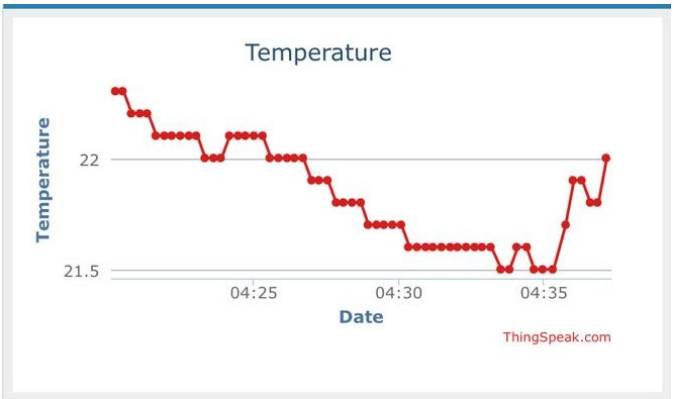

Figure 4: Screen of temperature

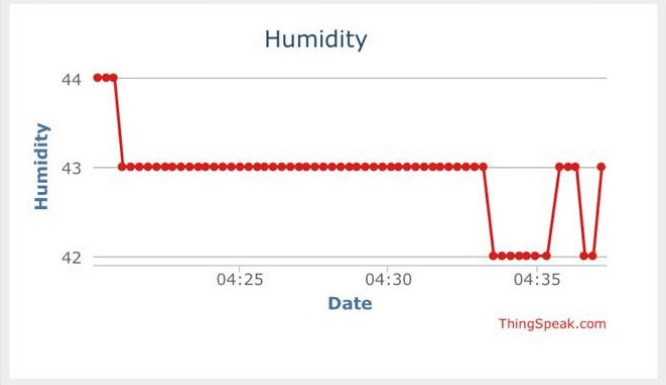

Figure 5: Screen of humidity

Figure 6: Screen of humidity

Figure 7: Screen of final result

Business Objectives

Growth of This Technology Lead To:

Flexibility in production.

Automate some of operations.

Intelligent in some of irrigation.

This sector is one of important sectors now days to help human life stile to adapt smart technology.

Limitations

the idea of smart cultivation in close areas, especially on vasa. The document designed on internet of things, Machine-two-Machine cooperation. In range from the physical levels to the computer platform use and the application use. In addition, this is at the lowest costs and energy consume. This document is useful for environment beauty on plants and assisting them in multiple management between crop and beauty.

Conclusion

The smart vasa using the Internet of Things help to control the plant in echo house. This project is based on sensors (temperature and humidity sensors, and the water pump) with help of (microcontroller and NodeMCU). by connecting to the Internet of Things ThingSpeak website and Blynk app on the phone, the operation of the water pump automatically run, depend on humidity of soil. The group of the sensors connecte to the app and website, the provided dash helps the user to see daily analyzes of temperature and soil moisture. This help to estimate the plant irrigation that is done. In the main time, user will receive messages in the form of any limitation of water through the email. While emphasizing the importance of analyzes produced by applications to improve the output and environmental impact. This new technology in the world of IoT is one of the fourth revolution in technologey. These services provided is benefit the society green house. All of this improve life style of living.

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Recommendations

Improve the component with latest technology of sensers to reach level of plug and play for example:

1-Replacing sensors with new technology that is use Wi-Fi chip, that for reduces the wires use.

2- Replacing microcontroller with Arduino to reduce spaces and direct connection to Wi-Fi.

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