Smart Plant Irrigation System using IoT

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Abstract— Agriculture has been the most important practice from very beginning of the human civilization. Traditional methods that are used for irrigation, such as overhead sprinkler and flood type, is not that much efficient. They ends up in tons of wastage of water and might conjointly promote wellness like flora formation because of over wet within the soil. Automated irrigation system is important for conservation of the water and indirectly viability of the farm since it's a very important goods. About eighty-fifth of total accessible water resources across the planet area unit only used for the irrigation purpose. In upcoming years this demand is likely to increase because of increasing population. To meet this demand we have a tendency to should adopt new techniques which is able to conserve want of water for irrigation method. In automation system water convenience to crop is monitored through sensors and as per want watering is finished through the controlled irrigation. The almost infinite capabilities of storage and processing, the rapid elasticity makes cloud computing an attractive solution to the large amount of data generated. The idea is to focus on parameters such as temperature and soil moisture. This is a Mobile Integrated and smart irrigation system using IOT based on application controlled monitoring system. The main objective of this project is to control the water supply and monitor the plants through a Smartphone.
Key words: General, Mobile Controlled Irrigation, Smart Irrigation System, Raspberry Pi, Sensor Controlled, IoT

I. INTRODUCTION

The smart plant irrigation system is an IOT based device which capable of automating the irrigation process by analysing the moisture of soil and climate condition In India, agriculture in villages plays an essential role in developing the country Basically, agriculture are dependent on the monsoon which have not enough water source To overcome this problem the irrigation system, The irrigation system employed in the field of agriculture.

Internet of Things represents a general construct for the power of network devices to sense and collect information from the planet around U.S.A., and then share that data across the Internet where it can be processed and utilized for various interesting purposes. Internet of Things is very quickly becoming a reality. We can see the proof of it around U.S.A.. Our devices are getting smarter each day from smartphones to smart TV to smart car to Smart kitchen. Everything is now getting connected to Internet. Internet of Things (IoT) describes a network of physical objects that connect to each other through the internet.

Objects, or 'things' will transfer info wirelessly while not requiring human interaction. A 'thing' can be any object that can be assigned an IP address and provided with the ability to transfer data over a network.

A Thing, within the net of Things, can be a person with a heart monitor implant, a farm animal with a biochip transponder, an automobile that has built in sensors to alert the motive force once tire pressure is low or the other natural or semisynthetic object that maybe appointed AN information processing address and given the power to transfer data over a network.

These devices collect helpful information with the assistance of assorted existing technologies and so autonomously flow the information between alternative devices. Current market examples include smart thermostat systems and washer/dryers that utilize Wi-Fi for remote monitoring. Internet of Things or IoT is an architecture that comprises specialized hardware boards, Software systems, web.

II. LITERATURE REVIEW

- In smart irrigation system the main controller is Raspberry pi [1].
- This system developed an automated irrigation system for The farmer on the basis of wireless sensor network [2]
- This system unceasingly monitors the parameters temperature, humidity, and moisture of soil. System starts or stops irrigation supported wet content of the soil. Sensors works on the change of impedance between Two electrodes kept in soil [2]
- Water level sensor is connected to main irrigation canals, and flow sensor is connected to water pump [3].
- These sensors ar connected to wireless entranceway that sends knowledge sporadically to internet server.

III. PROPOSED SYSTEM

The proposed automated irrigation and monitoring system consists of the raspberry pi, water pump, and moisture and temperature sensors.
Smart phones module is used for Communication.
- Fig 1. Shows the Use Case Diagram of the project.
- The sensors is connected to raspberry pi through Wire.
- The motor is controlled by the smart phone by the values ON and OFF.
- The data are stored using cloud.
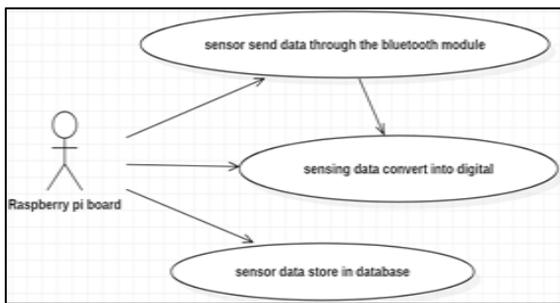- Database are connected to the web server.
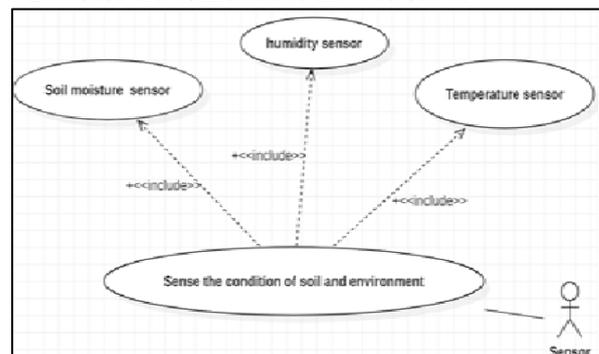
Fig. 1: Use Diagram

IV. ADVANTAGES OF PROPOSED SYSTEM

− Save water and money.
− Minimize the infrastructure to store and carry water.
− Protect the water resources for future generation.
− Increase in productivity.
− Reduced water consumption.
− No manpower required.
− Reduce soil erosion and nutrient leaching.
− Require smaller water sources.

V. FUTURE WORK

− The proposed system consist of less hardware compared to previous system, it is the more cost efficient.
− The smart irrigation system consumes 40-50% less water as compared to the traditional system, the small amount water is been applied over large amount of time.
− The smart irrigation system can be adjusted and modified according to changing environment.
− It is simple to operate.
− All the process can be monitor with help of smart phone and internet.

VI. CONCLUSION

The good irrigation system is possible and price effective for optimizing water resources for agricultural production. This irrigation system permits cultivation in places with water deficiency thereby rising property. It proves that the use of water can be diminished. The use of solar energy during this system is considerably necessary for organic crops.

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