International Research Journal in Global Engineering and Sciences. (IRJGES)
ISSN : 2456-172X | Vol. 2, No. 4, December - February, 2018
Pages 103-105 | Cosmos Impact Factor (Germany): 5.195
Received: 02.02.2018 Published : 28.02.2018

IoT BASED SMART IRRIGATION AND TANK MONITORING SYSTEM

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ABSTRACT The Indian financial system is based on agriculture - about 70% of its people depend on agriculture and it contributes to 1/3rd of the national income. Country which has the capacity to create three crops in a year, the continual cases of farmer suicides has become an embarrassing actuality. The expansion of agriculture has much to do with the economic benefit of the country.Indian downpour being irregular in nature; there is irregularity in the distribution of rainfall throughout the year. The irrigation system helps the farmers to have less dependency on rain water. impartial irrigation has been considered important for optimal development of crops. Superfluous irrigation leaches nutritive elements of the soil as water seeps down due to gravitational force of the earth. It also causes water logging. Similarly, scan irrigation can be destructive as water does not reach the lithosphere. Irrigation practice in India need constant monitoring. This paper focuses on dropping the water wastage by using smart irrigation. It discusses how Internet of Things (IoT) can be used to attain best irrigation by continuously monitoring the water level. It also discusses how water supply can be maintained using the planned mobile application.
KEYWORDS: Internet of Things; Arduino; irrigation; water tank; sensors; Wi-Fi module

INTRODUCTION

This paper focuses mainly on reducing the wastage of water and minimizing the labor-intensive labour on field for irrigation. It provides an substitute to a primitive method of irrigation in which an alarm associates a farmer when water reaches a certain level of the tank. The cultivator then shuts off the alarm manually and closes the water inlet to stop the supply. leak of water from the tank or a damaged alarm can result in wastage of a expensive resource. The proposed system will allow farmers to continuously monitor the water levels inside the water tank and the moisture level in the field, controlling the supply remotely over the internet. When moisture goes below a certain level, sprinklers would be turned on automatically, thus achieving optimal irrigation using Internet of Things

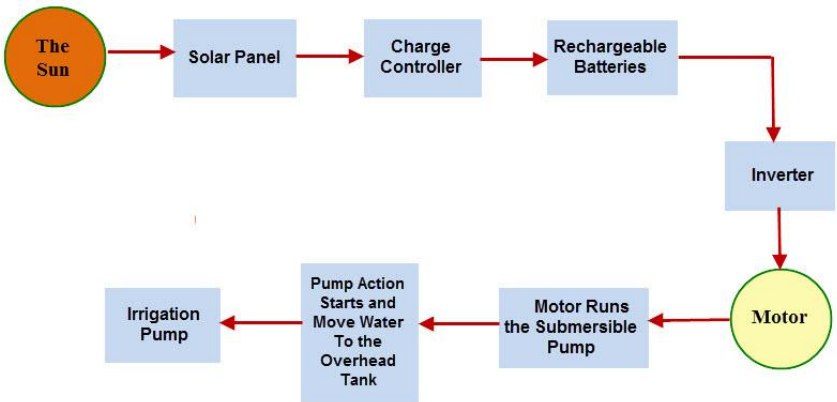

Fig 1Block diagram

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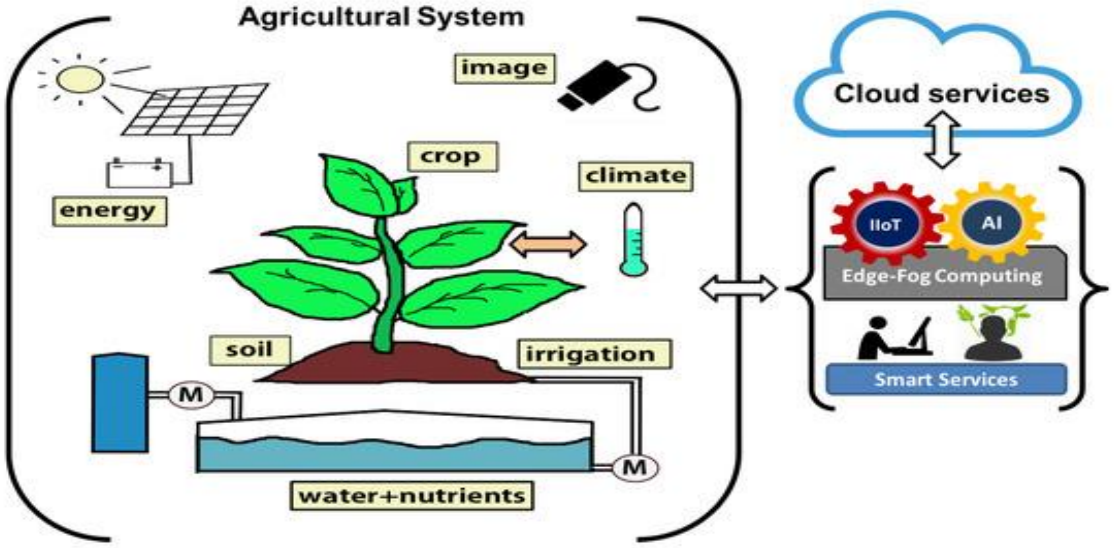

STRUCTURE

PROPOSED SYSTEM

The proposed system allows users to continuously monitor the water level in the tank, remotely on a mobile application through internet. The mobile application can be used to close up the water supply automatically, irrespective of the physical location of the user, provided the user has internet connectivity. Thus the job of switching off the motor manually has been automated. The smart irrigation system can be installed in farms to monitor the moisture content of the soil continuously. It would turn on the sprinklers automatically when water content of the soil goes below a certain level. The user can make sure if the farm is well irrigated remotely on the mobile application, without visiting the farm. These systems would improve the livelihood of farmers extensively

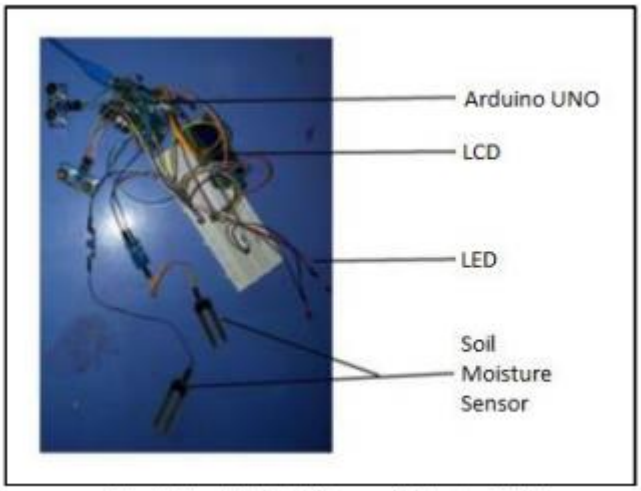

Fig. 3. Circuit for Soil Moisture Monitoring Module

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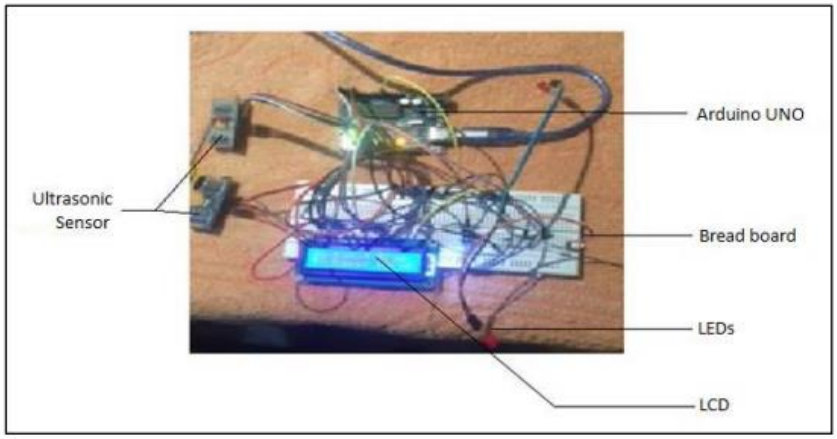

Fig. 4. Circuit for Tank Monitoring Module

CONCLUSION

The proposed smart irrigation system will act as a boon by optimizing irrigation while addressing the issue of water shortage by inducing judicial use of water through innovative IoT based technique. The smart irrigation component can be modified according to the specific need of different crops. This data can be stored on the server. Based on the crop chosen by the farmer on the mobile application, data would be retrieved from the server and the system would adjust itself accordingly, resulting in efficient irrigation and increased harvest.

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