

Design and Implementation of an Automatic Irrigation System based on Monitoring Soil Moisture and Agriculture Thief Detection

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Abstract: *This Project is proposed on precision agriculture system over the Internet of Things (IOT). Through analysing the present development of precision agriculture in outside world and considering its advantages and shortcomings, we decide an ecology farm as an example to conduct a replacement precision agriculture management system (PAMS). Designing a non-public Internet of Things (IOT) enabled platform for the research in precision agriculture and ecological monitoring domains. As water supplies become scarce thanks to climatically change, there's an urgent must irrigate more efficiently so as to optimize water use. During this context, farmers' use of a decision-support system is unavoidable. Indeed, the real-time supervision of microclimatic conditions are the sole thanks to know the water needs of a culture. Wireless sensor networks are playing a very important role with the arrival of the web of things within the community of the farmers. It'll be judicious to form supervision possible via Sensors.*

Keywords: Water Harvesting, Moisture, Irrigation, ArduinoController, etc.

I. INTRODUCTION

The water harvesting is that the backbone of farming industry. as per India is censured a lot of water gets wasted due to many regions. So, the requirement of water for farm can't get fulfill. due to the improper maintenance and wrong water harvesting plan the irrigation of water is additionally the foremost problem. Day by day the rain percentage is additionally becoming less than an extreme bit of water is obtainable for the farming. most of the water percentages also get wasted due to lack of proper attention by farmer. so, we are present a wise provision to deals with this problem that's nothing but "automatic irrigation control system". actually, we are sensing the moisture level of soil by using the sensor and accordingly control the motor. This is often the very cost-efficient unit because the value of sensor is extremely economical. The middle of the system is microcontroller atmega328.

A straightforward programming language program can perform all required operation. since nowadays, within the age of advanced electronics and technology, the lifetime of soul should be simpler and more convenient, there is a requirement for several automated systems that are capable of replacing or reducing human effort in their daily activities and jobs. Here we introduce one such system, named as automatic plant watering system, which is really a model of controlling irrigation facilities that uses sensor technology to sense soil moisture with a microcontroller so on create a wise switching device to help numerous people can we automatically water our home and garden plants without bothering our neighbours once we decide to last vacation or another place for an extended period? since irregular watering ends up in the mineral loss within the soil and will end up with rotting the plants, can we then somehow know if the soil really needs to be watered and if so, when exactly can we always water the plants?

We also propose Security could be an excessive amount of important thing to fret in our day-to-day life. Everyone wants to be secured the maximum amount as possible. Knowing our home or shop is secure provides us peace of mind. we all know now a day's theft has become a significant issue. during this project we design a sophisticated electronic security system by using small PIR and IR sensors built round the Arduino controller.

PIR sensor senses the presence of intruder & Controller reads the signal from sensors and if intruder is detected, it compares the detected signal with predefined signal within the database then it activates the buzzer yet as making a notification to predefined number

II. LITERATURE SURVEY

A. IOT in Precision Agriculture Applications Using Wireless Moisture Sensor Network.

- Wireless sensor network (WSN) and Wireless Moisture Sensor Network (WMSN) are components of IOT.
- Proper irrigation system could be achieved by using WSN technology.
- Monitoring and control applications have been tremendously improved by using WSN technology.
- It enabled efficient communication with many sensors. WMSN is a WSN with moisture sensors.

B. An Extensible Software Platform for Cloud-based Decision Support and Automation in Precision Agriculture.

- The precision agriculture may well be a decision support system (DSS) that acquires data from various sources, analyzes them, and recommends actions.
- DSS to manage various field devices through unified software defined interfaces.

C. Mobile Integrated Smart Irrigation Management and Monitoring System Using IOT

- The proposed automated irrigation and monitoring system consists of the raspberry pi, water pump, and moisture and temperature sensors Smart phones module is employed for communication.
- Architecting an IoT-enabled Platform for Precision Farming.
- In the proposed work, crops or plants are considered together with their water requirement at different stages. The crops or plants are irrigated with respect.
- System has used an android application i.e., blue term. These applications work totally on Bluetooth. To interface the android application and also the master robot we require a Bluetooth module.
- The system features a custom sensor design for power efficiency, cost effectiveness, cheap components, yet as scalability end simple use.

D. Wireless sensor network for precision agriculture.

- The proposed irrigation management system in using intelligent humidity sensor and low power wireless Trans receiver to gather the info and record SWT for facilitating irrigation management. The display employed in this paper is laptop/computer or PDA. The processed SWT data make it possible to see soil moisture trends and to predict or modify irrigation schedule for better crop yield.

III. PROPOSED SYSTEM

The objectives of proposed system are to design and produce an automatic watering system thereby saving time & power for the farmer. "**Enhancing Agriculture System with water management and thief detection system**" is used to automatically provide water to the plants by using moisture sensor which helps in saving money and water. The entire system is controlled using AURDINO AT Mega 328microcontroller which is giving the interrupt signal to the motor. Moisture sensor is connected to internal ports of micro controller via connectors, whenever there is a fluctuation in moisture of the soil these sensors sense the change in moisture and gives an interrupt signal to the micro-controller and thus the motor is activated, along with this java application is used to provide user interface on computer screen.

A soil moisture sensor is used to monitor the moisture content in the soil and accordingly turn ON/OFF the pump & supply required water to the farmland/plants without any human interference. Java application consist of two modes that's are automatic and manual mode. In automatic mode system is completely depend on sensor. In manual mode system/motor is completely depend on user choice sensor is ignored in this mode. Automatic watering system is designed in such a way which gives required amount of water in a targeted area.

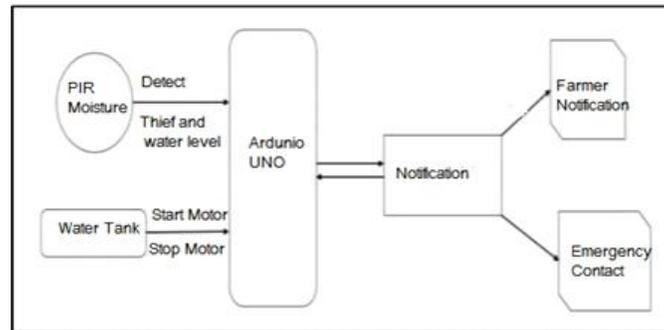


Figure 1: Architecture Diagram

IV. CONCLUSION

The Proposed system will help to automate the Motor in any electric system manually as well as automatically by sensing a moisture of the Soil. Our system will also help limit the water usage and saves money. Our system will also reduce the manual work by automating the process and also if any thief detected it will notify.

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