

Modern Irrigation System

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ABSTRACT

In our India agriculture is the most important for people. About 70% of Indian people depend Agriculture Fields. Because the India is an big agriculture country. So our motive to provide this research is to build a system that will act as a powerful tool can help the poor people at various fields. In this we use Modern Irrigation system technologies. It day by day update in this technology so is called modern irrigation system with smart monitoring. Because the population of the country is increasing day by day for which more production of crops, food grains is required for feeding the huge population in India's economy. And its help for save water, which is regarded to be one of the most important for the plants for the growth of agriculture and its make a better farming technology technique. So in this paper we focused only on the smart irrigation system with smart monitoring. In this we used a better monitoring the tank automatically as well as better farms which will be beneficial for water in smart way. And in this used IOT system whose made smart the system. Its smart sensors help for overcome the man power and its do all work automatically and in this overcome the highly power supply. And also we focuses on

measuring and maintaining the soil temperature within permissible value. That's by these project overcome the all problems and upgraded agriculture system for the country. All this performed will be performed using Arduino Uno.

Keywords : Arduino UNO microcontroller, GSM, Soil Moisture Sensor (LM393), DHT22 Sensor, IOT, Relay, Led etc.

1. INRODUCTION

India is focused only on the agriculture based system. At presents the population of the country is increasing day by day so the requirements are increasement in crops and requires a lot of man power because the farmers manually irrigates lands, which due this way they cannot properly monitor and maintence each and every field of their farming land, they do not prevent drainage problems and not overcome the water crisis in India. But now due modern technology we overcome traditional farming, lack of automation, lack of knowledge

and unavailability of sufficient water as well as electricity as these resources are scarce. Thus the proposed designed a application for farmers to automatically monitor and control the irrigation system using a arduino Uno controller, some sensors and the other electronics components and comparators. Now the farmers may automatically irrigate the farms and control the man power, and saving a lot of time using the modern irrigation system with smart monitoring. And control whether temperature on LCD.

2. LITERATURE REVIEW

A. Smart Wireless Sensor Network are used

B. This paper presents a system to monitor irrigation system in the agriculture fields. Because the irrigation system is one of the serious sector in developing countries. So in this proposes a low cost and efficient wireless sensor network technique which is used to monitor the soil moisture and temperature from various farm fields and control them. According to need of crop, the microcontroller take decision that it do it means ON and OFF, and itself find out what need of crops. And after according this sprinkle the water on the crops that how many need of water of crops. So the aim of system is to develop wireless system based low-cost soil temperature and moisture monitoring the system that can detect the soil and moisture of the fields in real time and sprinkle system water is fed to the soil near the roots depending on nature of crops growth in the soil.

C. Used Control System

All of sensors controlled in current available system, the arduino Uno will be used in this project that can sense

data seen the Internet. The system provides real time monitoring and control environmental. Thus, the farmer exactly knows whether a field required water or not. Hence, a farmer saves time, money and water resources by using “Modern Irrigation System”. The system has a distributed wireless network of soil moisture sensor placed in the root of the plants. In this we used a threshold value they created an algorithm to determine the amount of water to be supplied. They have worked automatic sprinkling system, and pump or irrigation system.

D. Problem in irrigation system

Today, India ranks second in the world in farm output with 64% of cultivated land dependent on monsoons. Irrigation accounts for 55-70% of water usages in India .Lack of over irrigation and under irrigation problem. Land is more and we need man power, smart tank, electricity, lack of IOT, installation costs etc.

3. COMPONENTS USED IN PROJECT

The following Components are used in this project.

Arduino UNO

Soil Moisture Sensor

Temperature Sensor

LCD Display

Water Level Switch

5V Relay

Indicator LED

GSM

GPS

4. HOW THIS DEVICE WORK?

Sensors from different device continuously emit the data in the soil, crops etc about the working state of them. Arduino Uno microcontroller provides a common platform to dumb their data in a common language for all devices to communicate with each other. Firstly soil moisture senses the level in the soil and based on the value that is shown on display, according to the control circuit motor will be start and it will pump the water with the help of a pump and pumping actions will continue till it fulfills the conditions. This Smart Irrigation and Tank Monitoring System provide a smart way to monitor the water tank and irrigate the crop field automatically. This proposed system reduces the man power of farmers like supplying water to plants and controlling the motor to fill tank. DHT22 sensor, Soil Moisture sensor, GSM Modem, Ultrasonic sensor etc, are used in this system and according to this sensor parameters farmer are provided an automated way to irrigate their fields and monitor by tank. In this we take water many resources for crops.

5. BASIC BLOCK DIAGRAM

The basic block diagram shown in the figure3. The paper aims at designing an irrigation system with smart monitoring which can be government is very large in respect of this developing this device. All Complete system worked under in IOT .

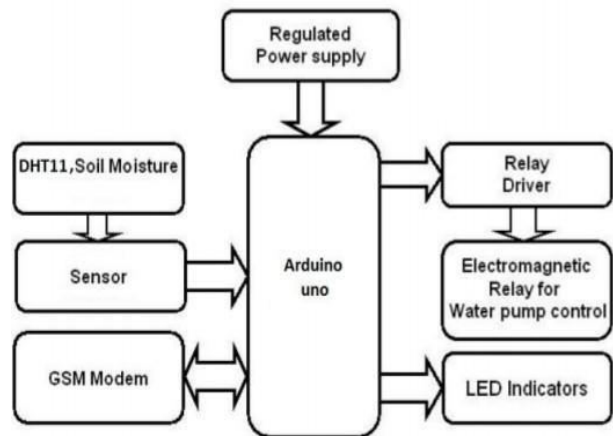


Figure 3: Block Diagram of the Simple Irrigation System

In this one of most important part is controller which representation of the application run screen. The moisture level values from the Moisture sensor will be displayed in the allotted widget after selecting the parameters in the application, the user now will be allowed the control to the motor either to start or stop the process. The application screen must be in run mode as the data and the control can be done over to the Arduino Uno.

6. THINGS TO CONSIDER IN IRRIGATION SYSTEM

It is helpful to understand what features are most vital and play important role in monitoring the irrigation system.

6.1. Ease to use

It is important to make sure that the device is comfortable and easy for your use.

6.2. Power Supply

The best case scenario that it is a monitoring device with less power supply. In this we use the

higher maintenance a unit is (requiring daily charging), the more likely you are to attach this device at any fields, it is showing best result.

6.3. Higher production

Multiple cropping in a year is possible through irrigation. It provides higher production and productivity of crops in less installation cost.

6.4. Water Saving

Due to this we save the water wastage. If the water is unavailable so it will be notified the soon, and if water is available then pump is turned ON or turned OFF.

6.5. Sensors

In this RTC is a major part for sensing the crops which we gives real time data on LCD screen. Soil sensor and soil temperature sensor give truly values of soil of crops.

6.6. Alerts and Alarms

In this device we are using an audible output and LED indicator for alert. And we used water level alarm system when the tank fill then it worked.

6.7. Farming

Whenever the person wants to farming any crops or any other plants then there will be a functionality that can enable that the person easily irrigate our plants and monitored.

7. CONCLUSION

This project provides an attractive user interface with the most efficient way of controlling the irrigation system. In this firstly we have defined the various system and devices available. In this we monitor through comparator devices, GSM,

Controller Sensor, IOT, Reset button or any other devices. There are some important things to be considered like power consumption, maintenance, expandability, environmental friendly and increases in productivity etc..Its work advances monitoring. This system is highly recommended in the region where there is scarcity of water to improve their sustainability and give farmers a hope. Through this design consists only limited person by which user can interact and send a control sensor and also monitor the environment. So by having a proper idea of different technology we can develop a much simple and smarter system which will be affordable as well as easy to use for the farmers.

8. FUTURE ASPECTS

Our work can demonstrate vast opportunities to work on the device, and also on the field using the device that we have worked with. It devices can be used anywhere. Finally, it is hoped that although this Review is primarily intended as a guideline, other involved in research and development in irrigation and drainage may find it useful when drawing up plants and programmes for future research. The sensor that we have been worked with can also be reset according to most recent time update. In future time, our device can be kept testing for checking whether the sensor still runs properly and give real time data.

9. REFERENCES

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