

Advanced Irrigation System

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ABSTRACT

With the advancement of automation technology, life is getting simpler and easier in all aspects. In today's world Automatic systems are being preferred over manual system. Automatic system is a growing system of everyday object from industrial machine to consumer goods that can complete tasks while you are busy with other activities. India's population is reached beyond 1.2 billion and the population rate is increasing day by day then after 25-30 years there will be serious problem of food, so the development of agriculture is necessary. Today, the farmers are suffering from the lack of rains and scarcity of water. The main objective of this paper is to provide an automatic irrigation system thereby saving time, money & power of the farmer. The traditional farmland irrigation techniques require manual intervention. With the automated technology of irrigation the human intervention can be minimized. Whenever there is a change in temperature and humidity of the surroundings these sensors senses the change in temperature and humidity and gives an interrupt signal to the micro-controller

I. INTRODUCTION

India is the country of village and agriculture plays an important role for development of country. In our country, agriculture depends on the monsoons which has insufficient source of water. So the irrigation is used in agricultural field In Irrigation system, depending upon the soil type, water is provided to plant. In agriculture, two things are very important, first to get information of about the fertility of soil and second to measure humidity content in air. Nowadays, for irrigation, different techniques are available which are used to reduce the dependency of rain. And mostly this technique is driven by electrical power and on/off scheduling. In this technique, an temperature and humidity sensors are placed near the

plant and near the module and gateway unit handles the sensor information and transmit data to the controller which in turns the control the flow of water through the pump.

II. METHODS AND MATERIAL

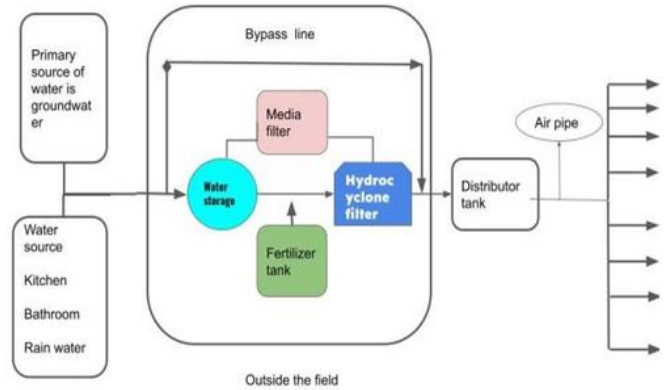
User Interface: User interface allow the user to interact with the system by sending information to the controller by presenting information to user about the system. Its generally a computer or a smartphone

- Controlled Devices: Controlled devices include a wide range of equipment that this arduino and sensor is capable of. Here in our project it is a motor.

- **Programming Computer:** Some system controllers allow the user to program the system with the systems own user interface. Other system require PC to program. Here we are accessing arduino IDE with the help of a PC.
- **Controllers:** Relay controllers provide the intelligent control functions in automatic irrigation control.
- **Sensing Devices:** Sensing devices can report values, such as temperature and humidity etc or states.
- **I/O Interface Devices:** These devices provide the logical communication link between the controllers and the controlled device systems

that can be present for daily or weekly watering so you do not need to monitor the watering because the timer shuts the water off when it has finished. Your water bill should be lower if the irrigation system is effective.

B. Layout of the project



In above fig there are two tanks are connected and these tank are connected In series with filter tank the water visible impurities are being filter out by net filter and other impurities are removed through layer filter as well as it maintain the minerals in water due the layer of coal and rock

The main line is connected through the by pass line of fertilizer tank which supply fertilizer as per requirement according to the Arduino

After that the flow rate of water Increase by motor so that water flow rate is same at the start and at end of the fertilizer tank

IV. CONCLUSION

The automatic irrigation control using arduino uno has been experimentally proven to work satisfactorily and we could successfully set the timer and managed to control the motor over time. This process not only records values of temperature and humidity it also controls the motor accordingly. Analyzing the weather condition motor will automatically maintain water supply making it possible to maintain greenery without human intervention.

S.no.	Components	Quantity
1.	12v motor	1
2.	Water storage tanks	3
3.	Pipes	20ft
4.	Arduino	5
5.	Solenoid valve	3
6.	Non return valve	2
7.	Filter tank	1

III. ADVANTAGES OF AUTOMATIC IRRIGATION CONTROL

Prevents Disease and Weeds Specialized drip irrigation systems direct water specifically to each plant's root ball, rather than sprinkling the entire garden like a typical rainstorm. As a result, surrounding weed seeds cannot germinate, so you'll have less weeding to do. Water at the roots also prevents leaf diseases caused by standing droplets on the foliage. Because the water does not strike the leaves or flowers, blight diseases have no chance of proliferating..

A. Conserves Water and Time

Hand watering with a hose or watering can takes substantial time and early morning and evening watering rituals take away from family and work. Both drip and sprinkler irrigation systems have timers

V. REFERENCES

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