

“AUTOMATED DRIP IRRIGATION”

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ABSTRACT:

Main aim of this project work is to search the possibility of irrigation in the areas where less amount of water is available for irrigation. To overcome water problem we have to think about the automation of the system for maintaining adequate irrigation level of the farm. To achieve this current experimentation is planned, in this we are using simple electronics element for maintaining the adequacy in water supply to the plant.

Background

A timer for the automation of drip irrigation is set, which works accordingly to the sensors and combining all this features the flow of water in fields will be automatically controlled rather than manually. Sensors are installed in the root zone at the undisturbed soil. The soil moisture sensor is a sensor connected to an irrigation system controller that measures soil moisture content in the active root zone. Soil moisture sensor can reduce irrigation application by 50%. These sensors are buried in the ground at required depth. Once the soil has reached desired moisture level the sensors send a signal to the Microcontroller to turn off the relays, which control the valves.

Project Goals/Objectives

- It's easy to install and simple to use.
- Fertilize the plants directly through drip system.
- Save 20 - 80% of water and fertilizer bills.
- Control weed growth by watering only where it need.
- Each plant can be watered individually.
- Protect the property from erosion.
- Reduce snail population.

Methods/Process

1/2" D.C. Solenoid valves are used along with IC89S52. Moisture sensor is end sensing element in the project which works as the feedback element for confirming the adequate irrigation of the plant. Setup is made up with 1/2" PVC pipes fitted with the accessories.

Conclusions/Recommendations

The Microcontroller based drip irrigation system proves to be a real time feedback control system which monitors and controls all the activities of drip irrigation system efficiently.. They can provide irrigation to larger areas of plants with less water consumption and lower pressure. Using this system, one can save manpower, water to improve production and ultimately profit.

Acknowledgment

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Results/Outcomes

PARAMETER	BEFORE	AFTER
NEED OF WATER	6-8 hrs daily	4-5 hrs daily
FERTILISER	More	Less
WEED GROWTH	More	Less

References

J. Dhiman, S. Singh, and S. Dhiman, "Utilization of Irrigation Water Using Microcontroller", Automatic Control and Information Sciences, Vol.1, No. 1.