AUTOMATIC IRRIGATION SYSTEM USING MICROCONTROLLER

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ABSTRACT

This project will help the farmers to remove manual intervention controlled by microcontroller using moisture sensor and giving highly efficient in conservation of water. This project on "Automatic Irrigation System on Sensing Soil Moisture Content" is intended to create an automated irrigation mechanism which turns the pumping motor ON and OFF on detecting the dampness content of the earth. In the domain of farming, utilization of appropriate means of irrigation is significant. The benefit of employing these techniques is to decrease human interference and still make certain appropriate irrigation. This automated irrigation project brings into play an Arduino board ATmega328P micro-controller, is programmed to collect the input signal of changeable dampness circumstances of the earth via dampness detecting system.

Irrigation system uses valves to turn irrigation ON and OFF. These valves may be easily automated by using controllers and solenoids. Automating farm or nursery irrigation allows farmers to apply the right amount of water at the right time, regardless of the availability of labour to turn valves on and off. In addition, farmers using automation equipment are able to reduce runoff from over watering saturated soils, avoid irrigating at the wrong time of day, which will improve crop performance by ensuring adequate water and nutrients when needed. Automatic Drip Irrigation is a valuable tool for accurate soil moisture control in highly specialized greenhouse vegetable production and it is a simple, precise method for irrigation. It also helps in time saving, removal of human error in adjusting available soil moisture levels and to maximize their net profits. Irrigation is the artificial application of water to the soil usually for assisting in growing crops. In crop production, it is mainly used in dry areas and in periods of rainfall shortfalls, but also to protect plants against frost.

The conventional irrigation methods like overhead sprinklers, flood type feeding systems usually wet the lower leaves and stem of the plants. The entire soil surface is saturated and often stays wet long after irrigation is completed. Such condition promotes infections by leaf mold

fungi. On the contrary, the drip or trickle irrigation is a type of modern irrigation technique that slowly applies small amounts of water to part of plant root zone. Water is supplied frequently, often daily to maintain favorable soil moisture condition and prevent moisture stress in the plant with proper use of water resources. Drip irrigation saves water because only the plant's root zone receives moisture. Less water is lost to deep percolation if the proper amount is applied. Drip irrigation is popular because it can increase yields and decrease both water requirements and labour.

Drip irrigation requires about half of the water needed by sprinkler or surface irrigation. Lower operating pressures and flow rates result in reduced energy costs. A higher degree of water control is attainable. Plants can be supplied with more precise amount of water. Disease and insect damage is reduced because plant foliage stays dry. Operating cost is usually reduced. Federations may continue during the irrigation process because rows between plants remain dry.

In the fast pace world, human beings require everything to be automated. Our life style demands everything to be remote controlled. Apart from few things man has made his life automated. And why not? In the world of advance electronics, life of human beings should be simple to make life simpler and convenient. We have made "AUTOMATIC PLANT IRRIGATION SYSTEM". It is a model for controlling irrigation facilities, to help millions of people. This model uses sensor technology with microcontroller to make a smart switching device. Our basic model can be extended to any level of switching & controlling by using DTMF.

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ELECTRICAL FINAL YEAR