

Abstract

Water is an important element which is responsible for life on earth. Although two third of the world is covered with water it is not in the usable form. Rivers, lakes and rain are the only fresh water sources on the earth. This has to be utilized by various forms of life, in agriculture, in industries and so on. In agriculture for the process of irrigation majority of the fresh water is being used but due to lack of automatic irrigation techniques the crops are being destroyed either due to over irrigation, under irrigation and sudden change in climatic conditions.

In this project we proposed an automatic real time irrigation system which consists of soil moisture sensor, a controller (Arduino), solenoid valves, relay module, GSM SIM 900A module and a 0.5hp water pump. In this project the complete field is divided into sectors each associated with some moisture sensors. The moisture sensors detects the moisture level in a particular sector and if it is less than desired value then the solenoid valve of that particular sector is excited and water pump is switched ON. This allows us to water a particular sector only and making it applicable to real time. This system also intimates the farmer about the field status, which sector is DRY and which sector is WET using a GSM module. The code is implemented using arrays and a single function is sufficient to send any number of messages making it extended to any number of sectors.

The proposed system reduces the human effort in irrigation and conserves water. This idea of project can also be used for various applications.