

Sensor Based Automatic Watering System Using Arduino

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ABSTRACT: In these days people are becoming busier in their life but the way how they are interested to earn money similarly they are also interested to grow plants. But due to their busy schedule they are unable to spend some time in these type of activities like gardening and planting some trees and to water them daily without any fail on each day. The main objective of this paper is to provide an automatic watering system there by saving time & energy of the people. In this process by determining the moisture level of the soil with the help of soil moisture sensor that which is placed in the soil and passes the information to the “Microcontroller” that the soil requires some water That is “Arduino” which is used in the process as a basic Arduino UNO the microcontroller and automatically the water motor gets switched on and the required water is been taken and similarly the sensor intimates water is enough for the soil and the motor to been turned off with the help of relay that which is connected to the micro controller. Due to this automatic system there will be no use of people to take care for the purpose of watering the plants each and every day

KEYWORDS: Soil Moisture Sensor, Relay, Water Motor, Arduino.

I. INTRODUCTION

Generally these days people are becoming more lazy that is due to introducing different types of technologies that which makes life more easier than the previous that's the reason by introducing such type of automatic systems for watering plants make the work more interesting and that which will be more liked by the people that to grow them in such a manner with the help of automatic watering system The main reason is to introduce this type of technology is that not to make any effect of people on the plants in the garden due to their busy schedule and work

Having an idea of planting trees is a great idea but to implement that plan is not such easy to do. But by following this process of technique this can be done being within the busiest life

A. MOTIVATION

Sensor based automatic watering system using Arduino works for every one in the society that which can be operated on self just by providing the power supply to it Mainly some of the people are much motivated to plant some of the trees that which they are much liked to plant them in their lawns but it is possible to takeover the work by homemakers but that is not such easy for the ladies who go for work such as “companies” and “offices” mainly this project is focused to get them an a solution for their problem of being interested in planting some trees in their home By using such technique human work can be minimized a lot

II. BLOCK DIAGRAM

The soil moisture detector sensor is been connected to the “microcontroller” that which we are using here is Arduino (uno) as the input device and by reading the values from this “sensor” as input the micro controller will decide that whether to pass the signal to the relay that is to switch on the motor or not that which is connected at the output side of the main “microcontroller” and if required then relay will start the motor on similarly the process of switching off the motor also will be done based on the input values that which are being read from the sensor and which compares with the value that which is mentioned in the code to equate with in this way the process gets executed.

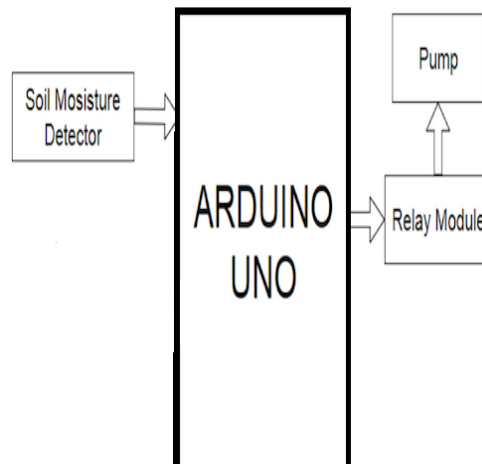


Fig:1 block diagram

A. CIRCUIT DIAGRAM

The components that which are visible here in the circuit diagram are the Arduino uno, soil moisture sensor, relay & 9volts battery that which is used for the power supply to the arduino

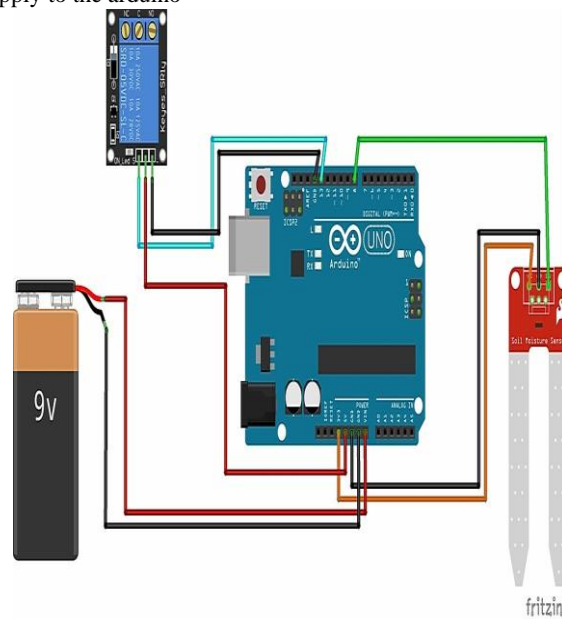


Fig.2 circuit diagram

B. FLOW CHART

This flowchart consists of the process that which is been followed in this specified project that starting from the start block to the end block includes the process that by taking the decisions that what to do with the taken input sensor values

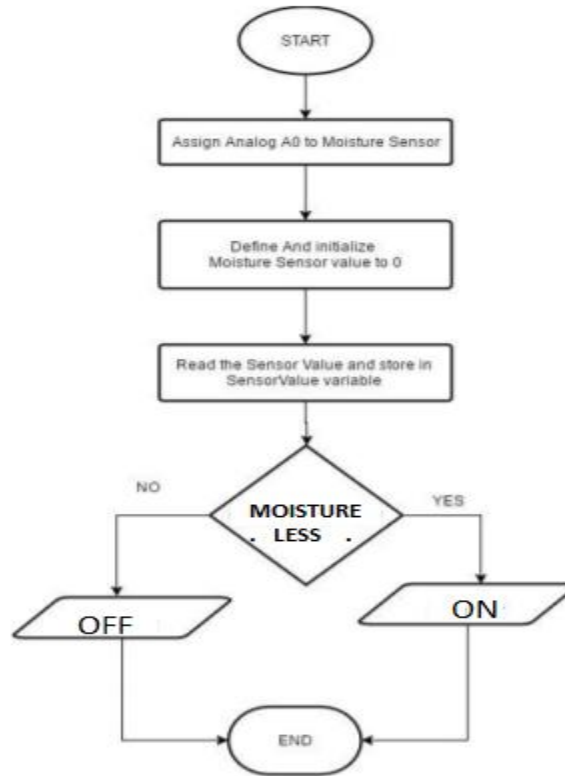


Fig 3: Flow Chart

C.PROGRAMMING

In this microcontroller the software Arduino IDE is used to program the controller that which includes the headers & drivers related to the components that which we are using to interface them here to the controller along with the pin numbers that which we are going to use the slots that for connecting the individuals based on their work that depends onto choose analog or digital pins to be interfaced with are to be written in the code and should be complied and followed by dumping to the controller

D.WORKING

Firstly the sensor will read the moisture level of the soil and that passes the value to the microcontroller and the received moisture level value will be compared with the the actual moisture level value that which is been given in the code as per the basic knowledge on the moisture content handling techniques & then if required the water motor will be turned on that by passing the command to the relay to switch it on that as the water is required at present and the process goes on repeating and after water gets filled the moisture level in the soil gets increased and now by reading these new values the controller’s commands to the relay that the water is enough for the soil and the reason why we are using the relay here is the voltage required by the motor to get turned on is not affordable by the microcontroller the main point here is by providing 9volts power supply to the microcontroller also the output voltage we get is always“5volts” only and there is another slot of 3.3volts that which is used for less power supply operated components that the reason we are using relay here that which provides the entire supply but stops sending the operating voltage that which will be controlled by the microcontroller that is the Arduino uno which we’re using in this process. Instead of the Arduino uno Arduino nano can also been used and even mega etc. controllers can be used this is how the working of the sensor based automatic watering system using “Arduino” works

III.RESULTS

The following project is been done and executed by us authors: “sailokesh kalemula” & “B Srinath Reddy” the following are the pictures that which describes the whole project the sensor based automatic watering system using Arduino here in both the Figure 4 and Figure 5.

The working model pictures are shown below:



Figure 4 working model 1



Figure : 5 working model 2

The results are verified and specifies that the technique works in very proper manner as per the designed manner and soil moisture sensor is the only one that which is required to replace in case of any sort of trouble if shown by the kit



IV.CONCLUSIONS

In earlier processes according to the time of the allotment the plants get watered even if the water is present in the soil also but by using this technique the process involves of checking the moisture level and verifying whether the water is required or not and then the motor gets turned on and finishes the process hence finally the power is also very much consumed in this process than time to time watering system

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