AUTOMATIC PLANT IRRIGATION SYSTEM

1st Darshit Patel
19BEC092
dept. of EC engineering
Nirma University,Ahmedabad
19BEC092@nirmauni.ac.in

2nd Het Patel
19BEC093
dept. of EC engineering
Nirma University,Ahmedabad
19BEC093@nirmauni.ac.in

***Abstract*—As per report india has 16.6 million of farmer. So it's very important to level up their lifestyle. Now a days every area has latest technology. so we must take care about agriculture area, This project has latest technology to farming because of this farming should be more efficence afortable and flexible. The use of micro controller this project also report and anaysis use of water and farmer observating the less amount of water is wastage. If IoT devices wisely use with this system provide reminder and notification in connacted android device. So this technology also very useful to in general life without wastage of time anywhere people can irrigation their homeplants.also because of this device farmers can easyly do farming and chances of loss is very less.**

I. Introduction

In the world of advance electronics, Life of human beings should be simpler. Hence to make life more simpler and convenient for framers at lower level and also higher level have made automatic plant irrigation system. Now a days In agriculture field water is the biggest problem for farmers. They are facing water problem for their crops. Because they have not proper idea about advance technology as well as power availability. So that most useful solution is to provide them a device which automatically do irrigation and then 'AUTOMATIC PLANT IRRIGATION SYSTEM'is best idea for that,. It is useful for farmers as well as in gardens also. If the irrigation point is resolved then most of the farmers problems solved. The automatic plant irrigation system helps to reduce the work of farmers. because of this system they do another work for their family and earn more. sometime more than one person doing same job in farm and it's very time lengthy activity. and from this technology we utilize the time and water also. When it's time to take practically implement it firstly For this method farmers needs to install the circuit and connect the pump in circuit and include humidity level sensor then circuit is complete and it's work.Then system starting the power-up and here we no need any trigger for the running.

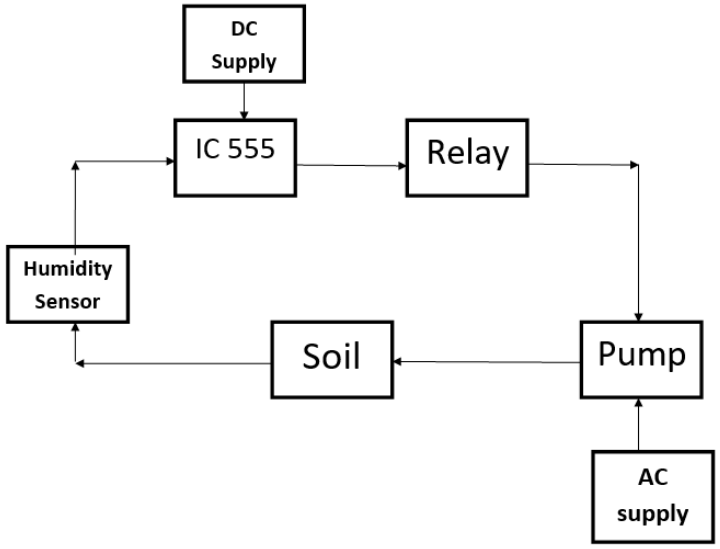
II. Problem Statement

India has good amount of population. So it's very important to produce as much as food and also at cost as low as lower class people can buy a very easy. for low cost it's very important to sure that crops failure had not ocuure. At other end, people have not enough time to take care their home plants and garden because of busy schedule. Also world whole suffer from covid-19 and it's very imporatant to maintain social distance . People have not optin to work garden for them. so it's very questionable matter to manage their gardens. It says is very helpful device in twice problem with the help at some additional device.

Identify applicable funding agency here. If none, delete this.

III. Block Diagaram

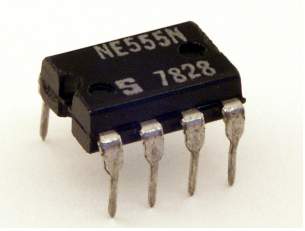
This is block diagaram for 'AUTOMATIC PLANT IRRIGATION SYSTEM'.



IV. Hardware Component

In this project we use,

A. IC 555 Timer



- It is integrated ckt. And application such as pulse generation, oscillators and timer.
- The supply voltage of 555 timer ic can be 4v-15v
- The 555 timer has three operting modes.
- 1) Astble:- in this moad 555 timer gives continuous rectangular pulses
- 2) Non stable :- in this o/p pulse ends when the volatage on the thersold pin is 2/3 of the supply voltage .
- 3) Bistable:-this is filp flop ckt.

B. Sensor - umidity sensor

- It measure water content in soid with the help of some other parameters of soil like resistance dielectric constant etc.

C. Realy Board - switch

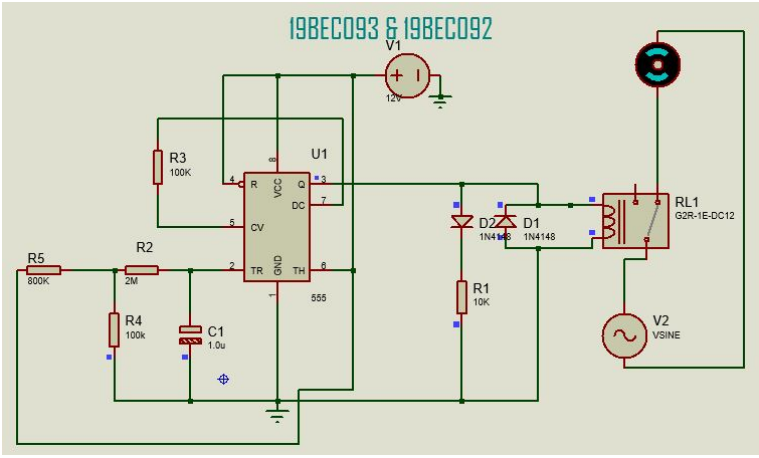
- It is electrically operated switch.
- It is used to perform to counter circuit by separate low power signal.

D. DC motor pump

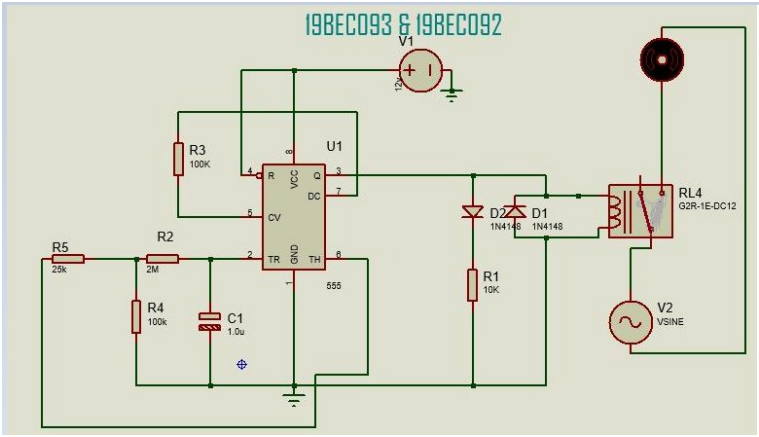
- It is one of DC motor which cotated by water print material.
- 5V supply
- Direct current electrical power
- Mechanical Power

V. Circuit and Simulation

The whole project depends on mainely two parts: 555 timer and relay. when suitable input resistance apply to the 555 timer IC port has three is activated and relay works on and water pump is start. In below figure 1, input resistance higher because of sensor sence moisture very low and accordingly precess will conduct until enough moisture has done.



At other hands Figure 2 shows low input resistance and accordingly 555 timer is OFF and them relay is OFF and also water pump is OFF and irrigation is OFF.and that's way the water is utilized.



VI. Result and Analysis

from this work automatic irrigation system measure and control moisture of land and accordingly water pump will ON and OFF and water wastage is very less. Here using the sensor system decided soil is dry or wet and perform accordingly task.

VII. Advantages

- Highly sensitive
- Works according to the soil condition
- Fit and Forget system
- Low cost and reliable circuit
- Complete elimination of manpower

- Can handle heavy loads up to 7A
- System can be switched into manual mode whenever required

VIII. Applications

- Roof Gardens
- Lawns
- Agriculture Lands
- Home Gardens

CONCLUSION

At final analysis, I says successfully simulate in propeus8 software. I says is very useful and phusical device with some interchange the inner device in twice level. For very accurate output. It must that humidity sensor work very well. At practically implementation of this project is one time investment also lower cost so farmer (at lower level) use it. Finally it use of IoT device is effectivelly. This device has bright future with good amount of speed.

References

- ADVERSE IMPACTS OF DROUGHT ON CROPS AND CROP PRODUCERS IN THE WEST James Johnson and Vince Smith Montana State University Department of Agricultural Economics and Economics
- S. Darshna et aI., ”Smart Irrigation System” in IOSR Journal of Electronics and Communication Engineering (IOSR JECE), Volume 10, Issue 3, Ver. II (May - Jun.2015).
- L.L.Pfitscher, (2011) “An automated irrigation system for rise cropping with remote supervision”- proceeding of international conference on power engineering.
- Samy Sadeky, Ayoub Al-Hamadiy, Bernd Michaelisy, Usama Sayedz,“ An Acoustic Method for Soil Moisture Measurement”,IEEE2004
- Automatic water level control with short messaging (SMS) notification by sanam Pudasaini. International Journal of Scientific and Research Publications, Volume 4, Issue 9, September 2014 ISSN 2250-3153