



AUTOMATIC PLANT WATERING SYSTEM USING ARDUINO

Sayan Das¹, Subhajit Bose¹, Dibyendu Maity¹, Souvik Ghosh¹, Shalini Sharma¹, Dr. Sangita Roy², Arnima Das¹, Arpita Santra¹

¹ECE Dept, Narula Institute of Kolkata, West Bengal

²Asst. Prof. ECE Dept, Narula Institute of Kolkata, West Bengal

sayandas7121999@gmail.com, boesubhajit84@gmail.com, dibyendumaity68@gmail.com, soughosh2000@gmail.com

shalinipiyush1710@gmail.com, roysangita@gmail.com, arnimaz@gmail.com

ABSTRACT

From saving our lives from this polluted world, one which can help us is plants. So, their lives are as important as ours. Therefore, our first mission is taking care of them. It is not possible to look after all the trees in the world. So, what can we do? We can buy indoor plants for our own home and start taking care of them. Now, in this total taking care system the main work is watering the plant on a regular basis. Therefore, it is a big problem to watering the plant when we are not available at home. In that particular scenario we need this help using our project.

Keywords: *plant, watering system, soil moisture sensor*

Objective: The objective of the project is watering the plant automatically when it is required so that we can avoid the death of the plants.

1. INTRODUCTIONS

We are now civilized but along with this a new problem has come which is pollution. The pollution started when man first invented the fire. After that we added different types of pollutants to the environment. After so much research we came to know that tree plantation is a good way to save the world from pollution. Now we can do that indoors and outdoors also. For outdoor plants it is easy to maintain them but for indoor plants when we are not in our home it will be very difficult to maintain them mainly for watering purposes. Here our project comes to solve this problem by which we can water the plants automatically to avoid the death of the plants.

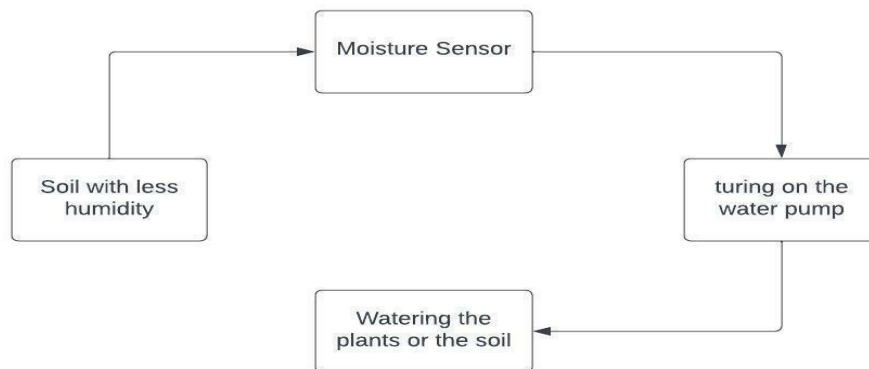


Fig: The condition of a fresh indoor plant due to improper caring

2. PROPOSED MODEL

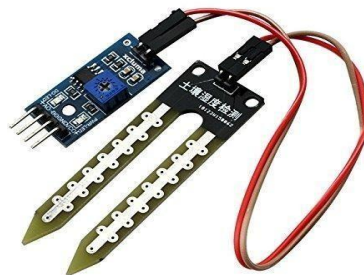
Saving a plant is a very important thing. Therefore, to overcome this issue we proposed a model that can help us to solve watering purpose.

- **Block Diagram of the proposed system:**



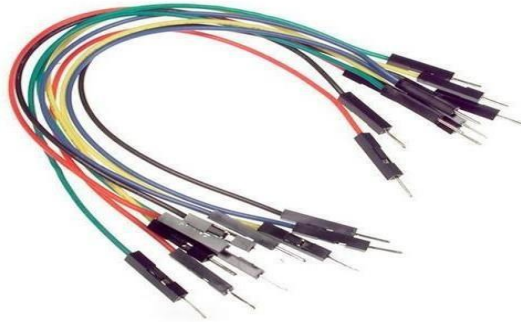
Materials Required:

- 1) Soil Moisture Sensor
 - 2) Arduino Uno Board
 - 3) Connecting Wires
 - 4) 4 channel Relay Board
 - 5) Water Pump
- a) **Soil Moisture Sensor:** Soil moisture sensor is a sensor which is used to measure how much water is present in the soil. These sensors can be stationary or portables such as handheld probes. Stationary sensors are placed at the predetermined locations and depths in the field, whereas portable soil moisture probes can measure soil moisture at several locations.



- b) **Arduino Uno Board:** Arduino UNO is a low-cost, flexible, and easy-to-use programmable open-source microcontroller board that can be integrated into a variety of electronic projects. This board can be interfaced with other Arduino boards, Arduino shields, Raspberry Pi boards and can control relays, LEDs, servos, and motors as an output.
- c) **Connecting Wires:** As Electricity need a medium, connecting wires are mainly used to connect different points in Breadboard. It helps us to make the circuit properly. Copper wire has a very low resistivity, so it is widely used.





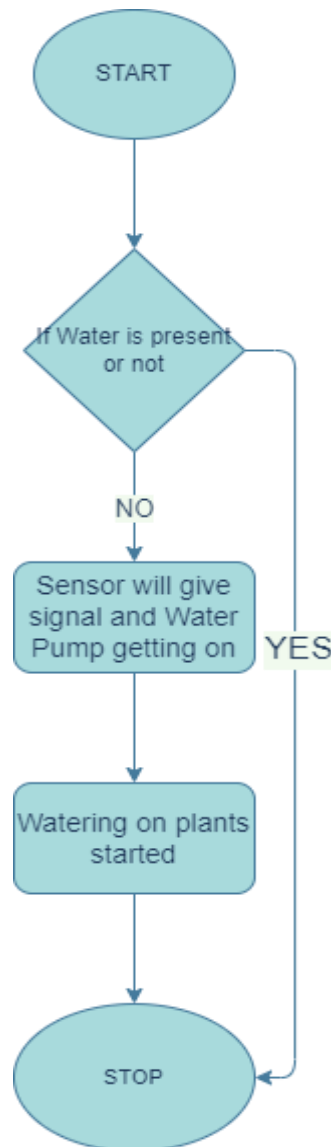
- (a) **4 Channel Relay Board:** The 4 Channel Relay Module is a convenient board which can be used to control high voltage, high current load such as motor, solenoid valves, lamps and AC load. It is designed to interface with microcontrollers such as Arduino, PIC etc.



- (b) **Water Pump:** A pump is a device that moves fluids (liquids or gasses), or sometimes slurries, by mechanical action, typically converted from electrical energy into hydraulic energy.



- **Flow Chart of the proposed system:**



Working Principle: In our proposed system, if there is no water present in the tub of plants sensor will give a signal to the water pump and then the pump will turn on and start to water on the plants. If water is present in the tub it will give the signal not to turn on the pump.

Applications: Basically we can apply our project when we are not in our home or we forget to water the plants. In this situation it will be a big problem how we can water our plants during the absence of ours. So our model can detect that the plant needs water and water the plants automatically using this total model.

Conclusions: The purpose of our project is to save the life of a plant from the absence of water. We have succeeded to build a model which can water the plants automatically when this model will understand there is a need for water for plants.

REFERENCES

- [1] Soil Water Level Testing For Agriculture Journal of Emerging Technologies and Innovative Research (JETIR) Koushik Sihi, Subhranil Majumder, Moumita Das, Sangita Roy, Arnima Das, Arpita Santra IJ V9(4), April,2022 ISSN-2349-5162
- [2] IoT Based Water or Liquid Level Detection System Journal of Emerging Technologies and Innovative Research (JETIR) Abhishek Chatterjee, Aditi Pal, Pallabi Chatterjee, Sangita Roy IJ V9(5), May,2022 ISSN-2349-5162

BIBLIOGRAPHY

- [1] Sayan Das, Student, ECE department, Narula Institute of Technology, Kolkata, West Bengal, India
- [2] Subhajit Bose, Student, ECE department, Narula Institute of Technology, Kolkata, West Bengal, India

-
- [3] Dibyendu Maity, Student, ECE department, Narula Institute of Technology, Kolkata, West Bengal, India
- [4] Souvik Ghosh, Student, ECE department, Narula Institute of Technology, Kolkata, West Bengal, India
- [5] Shalini Roy, Student, ECE department, Narula Institute of Technology, Kolkata, West Bengal, India
- [6] Dr. Sangita Roy, Associate Professor, ECE department, Narula Institute of Technology, Kolkata, West Bengal, India., Sangita Roy is an Assistant Professor at the ECE Department of Narula Institute of Technology under WBUT. She has teaching experience of more than 24 years. She was in Bells Controls Limited (instrumentation industry) for two years and West Bengal State Centre, IEI (Kolkata) in administration for two years. She completed her Diploma (ETCE), A.M.I.E (ECE) and M-Tech (Comm. Egg.), and PhD (Image Processing) at the ETCE Department of Jadavpur University. She is a member of IEI, IETE, FOSET, ISOC, IEEE ComSoc, and IEEE CAS. She has published in Journals as well as conference papers. Her research areas are Image Processing, Computer Vision, AI, and Communication Engineering.
- [7] Arnima Das. Assistant Professor, ECE department, Narula Institute of Technology, Kolkata, West Bengal, India, Currently working as, Assistant professor at ECE Department in Narula Institute of Technology Interested area is high frequency devices in communication
- [8] Arpita Santra, Assistant Professor, ECE department, Narula Institute of Technology, Kolkata, West Bengal, India, Currently working as, Assistant professor in Narula Institute of Technology Interested area is high frequency devices in communication