AUTOMATED PLANT WATERING SYSTEM

Mukkapati Ganesh Raghunadh, Kyung Tae Kim, Nelavelli Brahma Manas, Ravuri Sri Kanth

Student, Faculty, Student, Student

Electronics and Communication Engineering

Kalasalingam Academy of Research and Education

Krishnan koil, Madurai, Tamil Nadu

Abstract: *Our project on "**Automated Plant Watering System**" is here to design a watering technique which will be operated by itself (AN AUTOMATED SYSTEM) to the fields which will manage the water to the plants, it makes the motor to pump the water to start or to stop watering by identifying the moisture level in the soil. In the agriculture, the use of this technique is highly helpful for happy farming. The advantages of using these type of farming in the agriculture is to reduce the manpower and other as well as increase the watering. The proposed model consists of three stages: Firstly, sensing the land's moisture levels. Second stage is the determines the status: dry or wet. The last stage is Motor control.*

In the current version, Automated Plant Watering System (APWS) is able to detect and watering a small area that can be considered. Implemented Using Arduino UNO R3, and our project uses live input data to determine the conditions. And our project majorly represents our most basic step towards automated farming to improve turnover and reduce the impact of draught or loss due to watering issues.

I. INTRODUCTION

The biggest crisis in modern day and age is a great difficulty in the agricultural sector. The great losses done in agriculture are material losses or financial losses most of them are dedicated to crop health and quality. If the crops are noticed at range, this might lead to a loss. So to regulate this, we want to take care of the protection of the crops. On a particular basis, this is nearly impossible for a farmer who has large lands to observe and maintain. However, this is currently being managed manually. But nowadays workers are preferring simple jobs so there are shortage of man power. This makes automation a necessary part of the future. The greatest cause for the crops being not on par in improper watering. If these problems are solved, then all will be ok. Hence this is the point that needs to be renovated with technology. Automation will be extremely beneficial to the farmers. The automated plant watering system will make the work simple to farmers, and help to keep farms wet. Most of the farmers all over the world suffer to maintain their crops wet, but find themselves helpless. The farmers are facing very drastic nowadays, their lives become miserable. The politicians are also even not caring about them. They are checking for the people or for companies who help them during their fields. The lives of our farmers are very down than the beggars even no people care about them. This project will help farmers to keep their land irrigated their lands, without the need of any others. It has very simple circuit which is easily understood by the farmers.

II. TYPE STYLE AND FONTS

Nowadays, even our country is rich for the farming, the people are not getting the food to eat. The people are facing a lot of suffer to get the food to eat. The lives of the people are the end without the food. Only the people who have a money only can buy the food, but the poor can be affordable to buy. The loss of the crops is due to the water scarcity or the feeding of water techniques to the plants .So to decrease this issues and increase the crop yield the farmers are searching for the modern technologies and even for the better techniques to solve their problems. And also they are trying to increase their crops at the same place. For this they are trying for maximum benefited techniques to raise their crops. For this our project is very useful for them which is also reduce the manpower help to farmers. However Automated Plant Watering System (APWS) is associate degree automatic system that facilitates automated irrigation of lands at the same time, upon need.

III. EASE OF USE

There is an excellent got to modernize agricultural practices for higher water productivity and resource conservation. economical water management could be a major concern in preciseness irrigation practices. the employment of automatic irrigation systems will offer water on a time period basis at the foundation zone, supported the supply of soil water at the crop root zone, that additionally results in saving of water. though the bulk of crops area unit big with irrigation systems, drip and mechanical device irrigation area unit increasing in quality attributable to superior water application potency and a lot of precise irrigation management. automatic irrigation systems provide high-frequency irrigation, so maintaining the soil water potential (SWP) comparatively constant, compared to traditional irrigation systems. several ways are delineated and sensors developed to manage irrigation systems effectively.

This system's functioning includes using the device work automatically and controlled through the mobile application. For this type of classic design and knowing requirements is the first step. We need to know the advantages and disadvantages of previous studies in Nursing automatic plant watering system, we will begin implementing the layout and automation methodology for workable.

I. RESEARCH METHODOLOGY

To Implement the project we require proper planning of the system. The implementation of automated systems in agriculture has helped to successfully cut back the cost. The implementation of automated system helped revolutionize the irrigation. Thus, this project has been knowledgeable or non-expert-system-based method of field observation for detection of dryness. Moreover, the final beneficiaries of the project are the farmers who are the backbone of our country.

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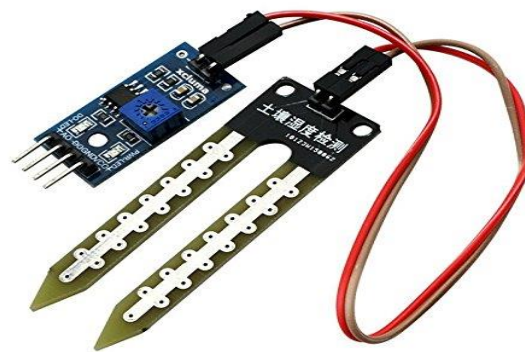
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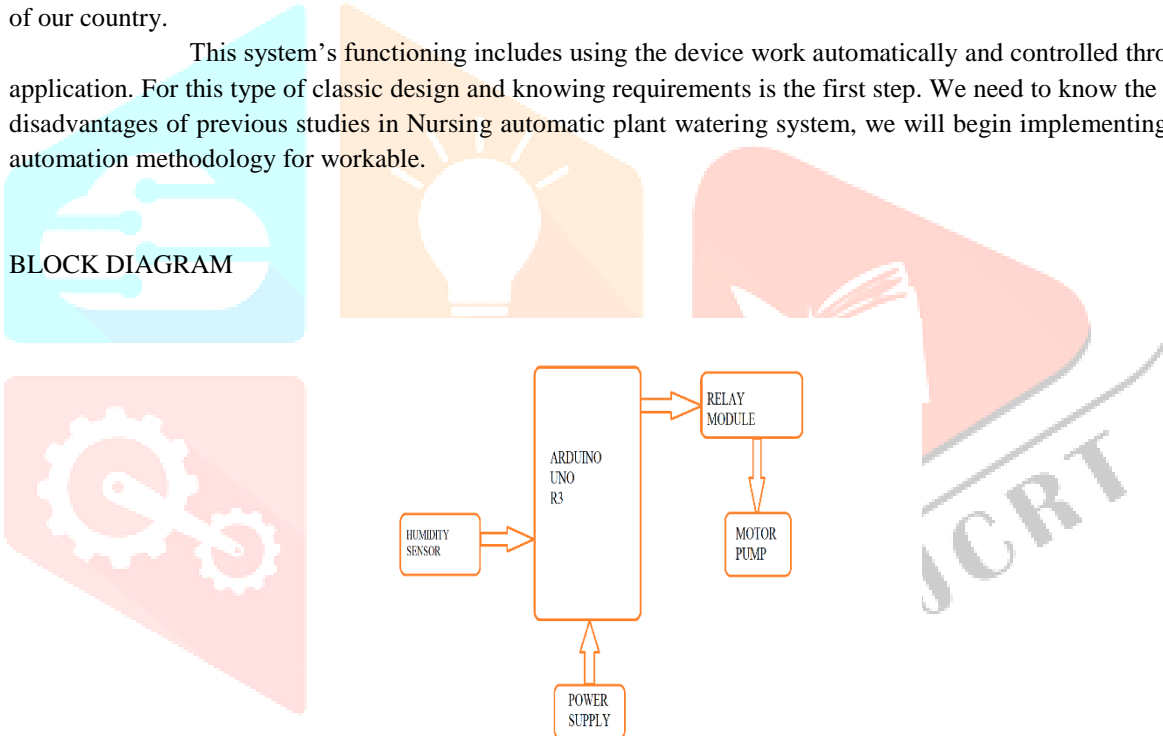
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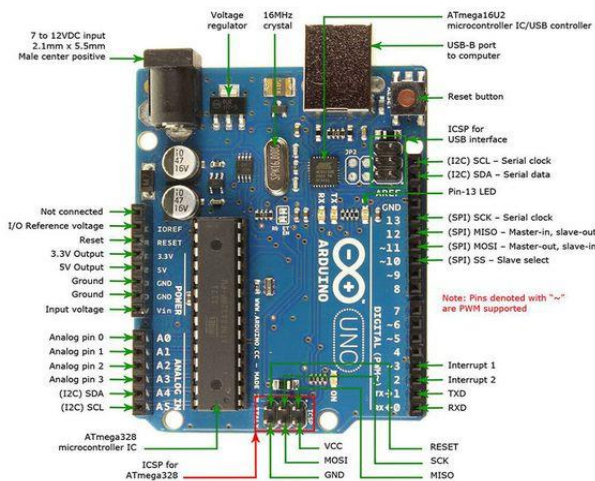
ARDUINO UNO R3

SUBMERSIBLE PUMP

RELAY BOARD

SOIL MOISTURE

IV. RESULTS AND DISCUSSION

After roaring Hardware Implementation of the circuit diagram in PCB following outputs can be obtained:

Once the worth of soil wetness is zero there'll be no association between the electrodes and a infinite ohmic resistance can occur between the 2 electrodes. This makes relay in ON state. The microcontroller send output „1" to the motor circuit. Thus it'll end in turning ON the motor.

When there's enough wetness is gift between the electrodes ðf the circuit. Then it makes an entire association between the electrodes. The relay can switch. Then microcontroller can send output „0" to the motor. this may lead to turning OFF the motor.

Later conclusion of arrange and the combination of scrap of the sensible Cultivation Process, they have fulfill their dream. And the, total wants was imposed to finish this sensible Cultivation Technique, which develops as accurate product and terminate. Later, the technique will be checked, then upshot will be PRN. This Process/technique can't do till more moisture detectors from the any part of the farms sends the information to the chip that there is no moisture level and it needs to be moistured. while signal reached to the ArduinoUNO, it will pass an order to the relayboard, which states one of the crop to be watered to start the valve and a order to start the watering of that particular part of the farms.

We can also take care of all three fields is irrigated at the same time, if some of the plants of all the plants senses dryness then the valve relays would be activated to open all the valves so that the pump can run to water all the plants. There are some consequences like if the relay is activated by mistake or if it is damaged, then we cannot know whether the problem is with the sensor and the system will work continuously and the water level in the tank will be reduced. Now we will have a water shortage in the tank therefore the system won't work even if there is a dryness in the plant. So we need to take care of the proper functioning of all the components in the system for proper functioning of the system.

This Automated Plant Watering System has a feature that, if it is monsoon season and if it rains it will automatically terminates watering the plants, and also sends the message to the ArduinoUNO that it is raining so there is no need to water. Then it will shut the pump and close all the valves. Other than this it also has a delicate sensing element which can be used to activate the process during morning like closing the plant valves and to stop the pump. The program programme has been chosed as discussed earlier to apply ArduinoUNO, the connection of wires from operator to the Board which are hard, can damage any power piece in the system. It was tough to program the system and transfer it in Arduino Board and to process of pump and open the valves using eighteen sensors, but using Arduino libraries, this system is completed properly.

We need to connect wires from twenty devices to the Arduino board it is very complex, but the plastic board became like a board madeout of wires, special versatile pipes ae used to supply water from the tank to the plant.

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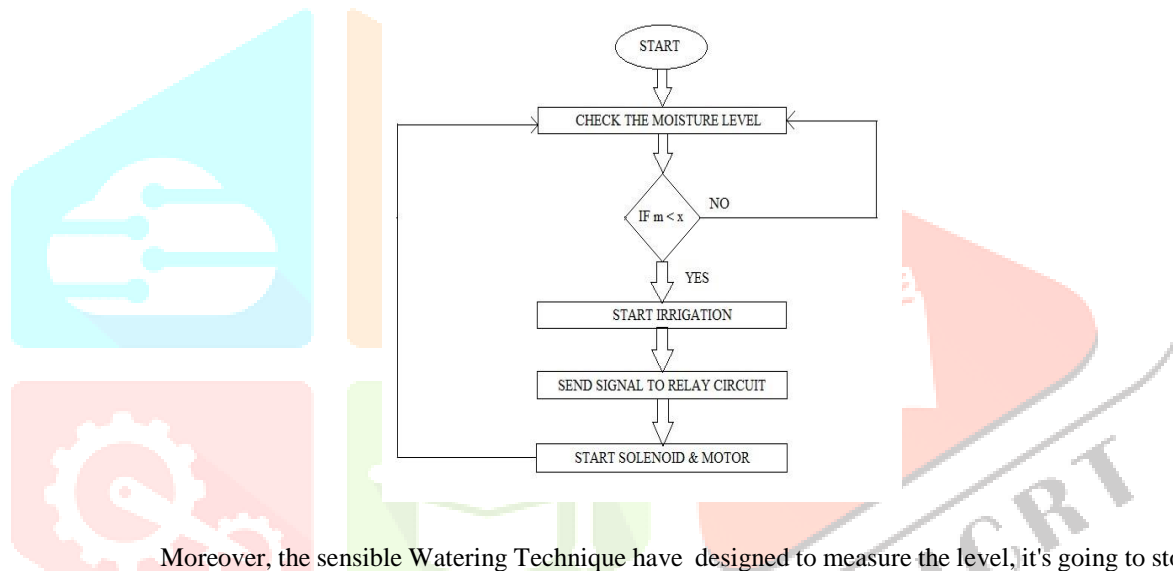
Moreover, the sensible Watering Technique have designed to measure the level, it's going to stop doing, as the end of decrease in sensing element will be enabled, after a signal will be sent to the ArduinoUNO to stop the watering and close too. After, in the morning the process can not work, delicate sensing element will be enabled in the morning value in addition on switch the pump. For the system programming, it's been exactly chosen as expressed in previous chapters to apply UNO Arduino, the wires connections from the controllers to the Arduino are pretty difficult, thanks to one mistake will injury any electrical part. it absolutely was rough to program the smart Irrigation system and transfer it in Arduino to run the pump and beginning valves with eighteen sensors, however with the assist of Arduino library, this technique become completed with best results.

Connecting the wires from twenty devices to the Arduino become terribly exhausting and complex, but by suggests that of victimisation the plastic board became to facilitate the association of these wires.For planning the plant, special versatile pipes had been wont to facilitate the association from the tank to the plant, however, we tend to round-faced drawback to attach pipes along. So, two types of pipe joints (T-joint and L-joint) were wont to clear up this issue.

OUTPUT PHOTO:
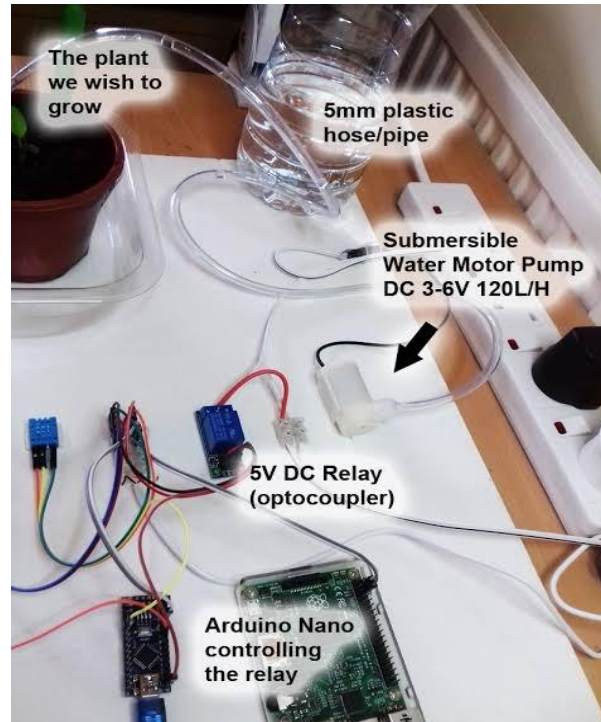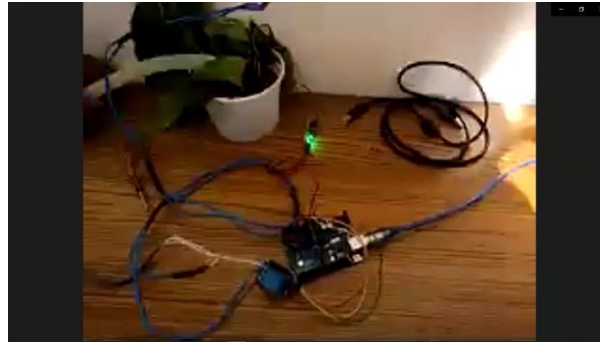
CONCLUSION:

There were many issues in making this system like size of the pipes required, and finding the materials required for the system and choosing the proper plant to show demos. There were many difficulties like this. The batteries used in the system drain quickly in use. The connection of the controllers to Arduino board is very hard. It is a challenging task to put in the program for Irrigation System and upload it to Arduino board to start the pump and gap valves with eighteen sensors. And nearly ten devices are connected to the Arduino board, it is very difficult to understand wires association.

FUTURE WORK

The first thing we need to do after completing the demo is, use it in the large scale and control it with WIFI Module instead of using wires. We can try using renewable energy sources instead of regular sources. Now we need to create an application to access the system easily and control it from any place.

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