SMART DISSOLUTION FOR CONTROLLED IRRIGATION

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ABSTRACT

Clean water is one of the rarest things in the world. Therefore, a measure should be taken to preserve it. When it comes to agriculture which is the basis of the Indian economy the methods used are still traditional. This leads to improper use of water. Therefore, to meet those needs the goal is to design a System Irrigation System based on sensors. This program will seek purpose with the help of moisture and heat sensors. Moisture sensors and temperature sensors will detect the actual humidity and temperature given the parameter to the microcontroller so the left operation will be performed on those parameters by the sensors. A comprehensive system will better meet water needs and save water and simplify the traditional irrigation system.

I.INTRODUCTION

At the present time, the world has to face a water crisis. As we all know that water is a basic need of Agriculture. Drip irrigation can be one of the solutions to this problem as it saves a lot of water. But this is not the right solution to this problem because it cannot predict the amount of water needed for plants. Sometimes water can be given in excess or vice versa. The water in this system will provide a smart way to irrigate. This program is an effort towards the concept of a smart irrigation system. The electric motor is sensitive to temperature and humidity conditions. Along with it, a Bluetooth devise can be added to the hardware device. Sensitive environmental conditions are captured and sent to Server, which has a MySQL database for archiving. The sensor node is still distributed in the irrigation field to detect soil sensation and sensor information is sent to the control node. When you find the sensor value the control node checks it for the required soil moisture content. When soil moisture in the irrigation field is not at the required level and the vehicle is opened to irrigate the agricultural field that accompanies the warning message is sent to the registered mobile phone. Intelligent irrigation systems measure and measure the reduction of existing plant moisture in order to operate the irrigation system, returning water as needed while minimizing excessive water use. The effects of the amount of water used for irrigation, frequency of irrigation, and water use are very important. To improve water efficiency there must be a proper irrigation plan in place.

II. METHODOLOGY

System calculation is based entirely on small controls. Automatic irrigation is provided by WSN to save water. The soil moisture sensor and soil temperature sensor provide live readings. Utility nodes are now a ground moisture sensor, temperature sensor, microcontroller unit. The data collected

from the sensor is transmitted to a microcontroller and a connection from the gate to a specific location is made. This data is transmitted remotely with the help of a mobile network. An internet connection allows data testing of current humidity and temperature and its clear representation is easy to make a decision. All sensory graphics and their rating ratings have been added to a mobile app called Blink. Ratings from gauges are marked and the switch is turned on / off correctly.

III. SYSTEM DESIGN

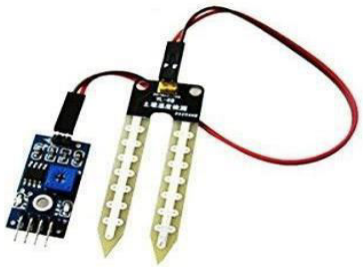
This system uses two type of sensors:

- Temperature sensors
- Moisture sensors.

These sensors are used to calculate the amount of water required for particular crops, and at what amount of time.

Moisture sensors:

A soil moisture sensor is placed in the ground and measures how much moisture is at the root. Allows your irrigation system to match the amount of water used and the amount of water needed for the plants. It allows irrigation when more water is needed or prevents irrigation when the soil is already wet from the rain. By not having enough soil in your soil, you can greatly reduce the amount of water used for irrigation. This saves money.



Temperature sensors :

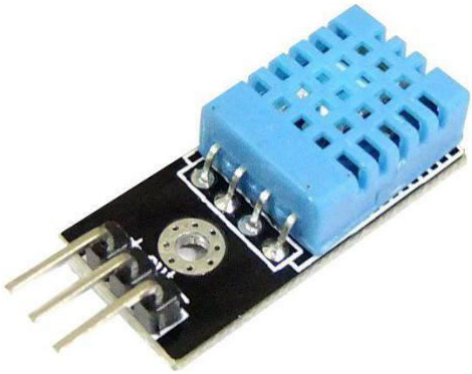
These sensors are those that receive Temperature or heat and are widely used in all senses. The temperature sensor varies from simple ON / OFF devices that control the domestic hot water temperature system to the most sensitive semiconductor. The heat sensor has two basic body types given below:

• Types of Heat Sensor Touch

• Types of Non-Contact Temperature Sensors

Also, this sensor is divided into three sensor groups, Electro-mechanical, Resistive, and Electronic. In the midst of all this, the thermistor sensor is agricultural. A thermistor is a type of heat sensor, whose name is a combination of the two words of the critical THERM-ally Resistor. Thermistors are made of ceramic-type semiconductor material using metal oxide technology such as manganese, cobalt, and nickel, etc. Semiconductor objects are made into small compressed discs or closed to give a quick response to any changes in temperature. Thermistors have a resistance value at room

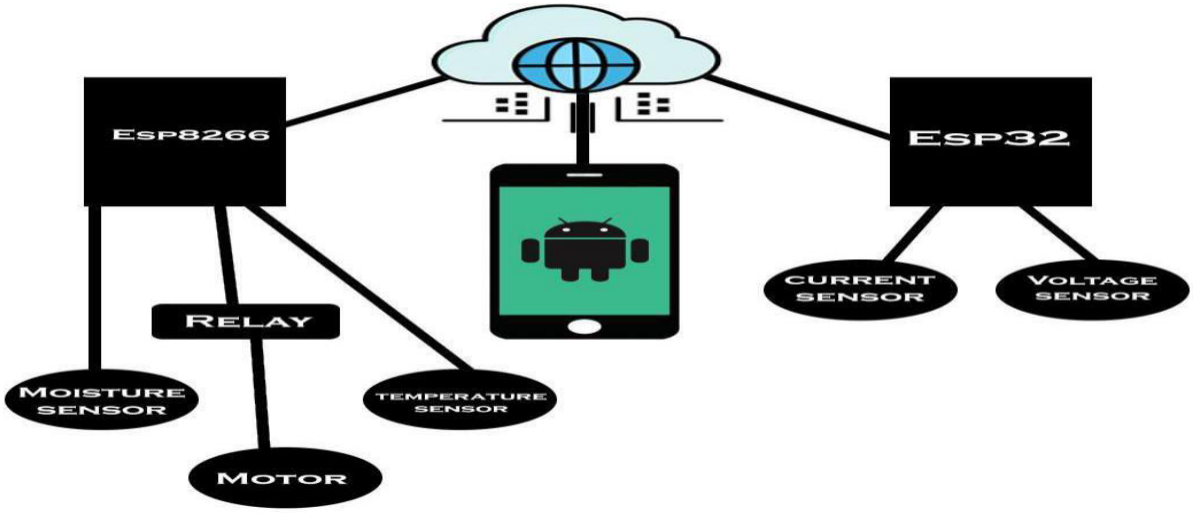
temperature (usually at 25oC). Like resistors, thermistors are available with resistance values at room temperature from 10's MΩ. But for hearing purposes, those values are usually measured in kilo-ohms. Thermistors are resistant devices that we need to transfer now to them to generate power outages. The thermistors are then connected to the series with a suitable discriminator resistor to form a potential separation.



ESP8266 and ESP32 (Micro Controller):

The ESP8266 module only works with 3.3V, anything above 3.7V would be arduino module and therefore should be warned of your circuits. A good way to configure ESP-01 is to use an FTDI board that supports 3.3V system. If you do not have one it is recommended that you purchase one or temporarily you can use the Arduino board. One common problem faced by ESP-01 is the power consolidation problem. The module is a little hungry while editing and that's why you can power it with a 3.3V pin in Arduino or use a potential divider. It is therefore important to make a small voltage regulator of 3.31v that can provide a minimum of 500mA. One recommended controller is the LM317 which can easily handle the task. The ESP32 is The integration of Bluetooth, Wi-Fi and LE Bluetooth ensures that many types of targeted applications can be achieved that our modules are diverse. While using Bluetooth allows the user to easily see (with low power beacons) module and connect it to a smartphone and Using Wi-Fi ensures communication within a large radius.

IV.WORKFLOW



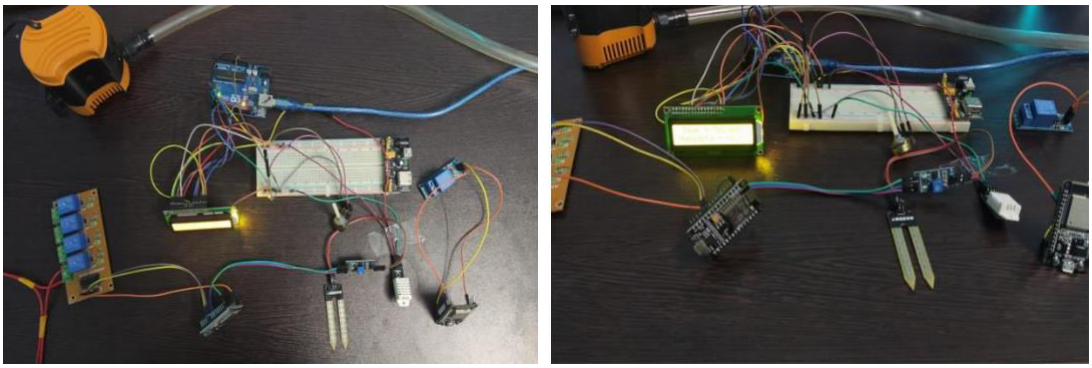


Figure 1: View of Building

V.RESULTS AND DISCUSSION

The implementation of the visualized idea has been implemented Using Blynk App and Tested in our college premises.

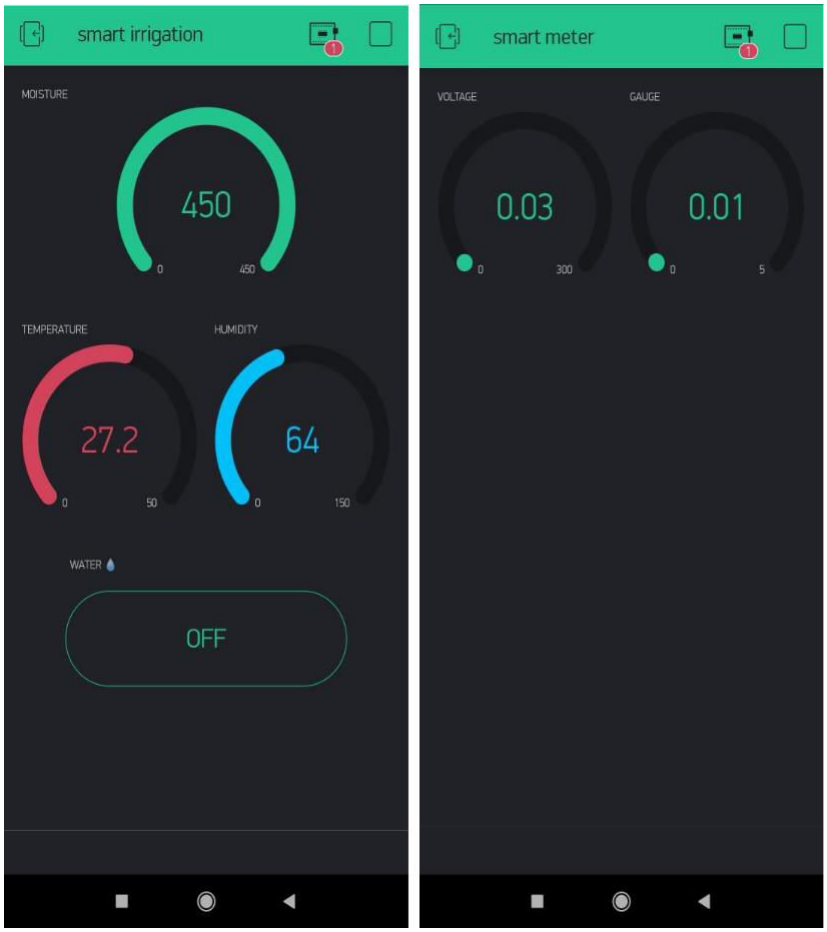


Figure 2: Blynk App Results

VI.CONCLUSION

Here the way was to save water which iscontributed to the use of irrigation. So looking forwardto developing an automated irrigation system was Objective.The default system will be upgraded with the help ofWSN, microcontroller, Bluetooth, GCS. Attention onlysensors detect visible boundaries in the ground as wellthe environment to be considered and providedit is a control unit for further action. in addition,the action can be performed by artists.

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