IOT USING SMART PLANT MONITORING SYSTEM

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Abstract - As we can see in today's world only some devices like PC's and mobiles are connected to internet. Now-a-days world is fully overtaken by the internet andinternet of things. Internet is use for basic need of all human beings. The Internet of Things (IOT) is the network of physical objects. It simply means to monitor a physical device or machine, or it is inter- networking of physical devices which is embedded with electronics, sensors, software and network connectivity to enable it to achieve greater value and services by exchanging data with the manufacturer. This project is designed as aplant monitoring system based on IOT. In this project we used different modules such as IOT, Node MCU, Temperature sensor, Moisture sensor, Humidity sensor

Keywords — IOT, Humidity, Moisture,Monitoring, Temperature

I.INTRODUCTION

We live in a world where everything can be controlled and operated automatically, but there are still a few important sectors in our country where automation has not been adopted or not been put to a full- fledged use, perhaps because of several reasons one such reason is cost. One such field is that of agriculture. Agriculture has been one of the primary occupations of man since early civilizations and even today manual interventions in farming are inevitable. Plant monitoring form an important part of the agriculture and horticulture sectors in our country as they can be used to growplants under controlled climatic conditions for optimum produce. Automating a plant monitoring and controlling of the climatic parameters which directly or indirectly govern the plant growth and hence their produce. Automation is process control of industrial machinery and processes, thereby replacing human operators.

In this paper the presented plant monitoring system technology to provide feedback to the user through smart phone. The automated system will reduce the need of manpower, hence reducing the error. for a largescale area, it is quite impossiblefor a farmer to monitor the efficiency of the system by implementing this technology, the farmers can easily monitor the system using their smart phone. Also due to busy life these days we are not able to keep proper care of plants such as watering plant, to check whether plant is getting sufficient sunlight etc.

To easy this we are making an IOT based automation system in which user can monitor plant parameters such astemperature, humidity, moisture and can also water them.

II.REVIEW OF LITERATURE

We have examined numerous earlier studies conducted in this area by various researchers. Technology use in the field of

Agriculture is crucial for both boosting productivity and lowering labour requirements. According to a review study IoT Based Plant Monitoring System[2], about 35% of the land.

1. JavaScript
2. HTML
3. CSS

- Database:MySQL

Host: 000webhost.com

1.SOFTWARE COMPONENTS :
2.Php my admin.
3.Android studio 3)visual studio code 4)Arduino IDE 5)postman Tool

in India was reliably watered. Additionally, the monsoon provides water to around two thirds of the land.

The use of irrigation increases agricultural output, decreases reliance on the monsoon, increases food security, and creates more employment opportunities in rural regions. Farmers are having issues with their irrigation system, namely how much water has to be supplied and when. Crops and garbage can be damaged by excessive irrigation at times. The system is combination of hardware and softwarecomponents.

III. HARDWARE COMPONENTS

1. Sensors (Moisture, DHT11)
2. NodeMCU
3. Relay
4. Motor

Language Used:

1. JAVA
2. PHP
3. CPROPOSED

Sensors: Soil moisture sensors are used to measure the moisture content of the soil. The DHT 11 (Temperature and Humidity): DHT11 is equipped with both a temperature and a humidity sensor. Two electrodes with a moisture-holding substrate in between them are used to measure humidity. As a result, as the humidity varies, so does the resistance between these electrodes and the substrate's conductivity. The IC measures and processes the change in resistance, preparing it for reading by a microcontroller.

On the other hand, a thermistor or an NTC temperature sensor are used to measure temperature using the DHT11 sensor. Because a thermistor is a variable 3.2.1 Node MCU: Node MCU is an open source IOT platform. While writing GPIO code on NodeMCU, you can't address them with actual GPIO Pin Numbers. There are different I/O Index numbers assigned to each GPIO Pin which is used for GPIO Pin addressing.

ESP8266EX offers a complete and self- contained WIFI networking solution; it can be used to host the application or float WIFI networking functions from another application processor. When ESP8266EX hosts the application, it boots up directly from an external flash. In has integrated cache to improve the performance of the system in such applications.

Resistor, its resistance changes as the temperature changes. These sensors are created through the sintering of semi-conductive materials (ceramic and polymers), which enable significant resistance

Fig 1: NODE MCU

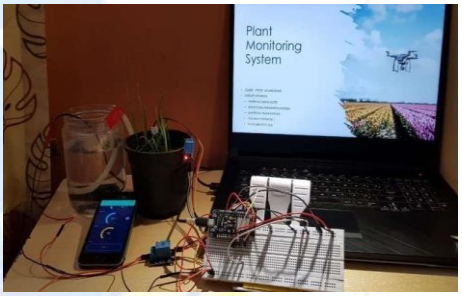
variations with only modest temperature Relay: The relay. It is attached to the circuitchanges.electronic board on the right and the probe with the two pads that measure soil moisture make up this sensor's two components.

How does it function? According on the soil moisture level, the sensor's output voltage varies. whenever the soil: Wet: A drop in output voltage. Dry: An rise in output voltage

Fig 2. Moisture Sensor

Fig 3. DHT 11

ground and the "NO" (normally



open) terminal.

Fig4:Relay

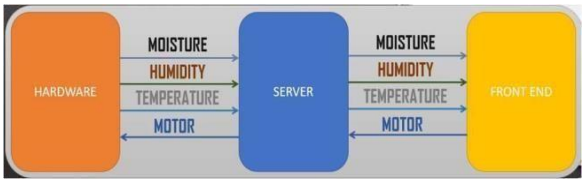


Fig 6. Working Project

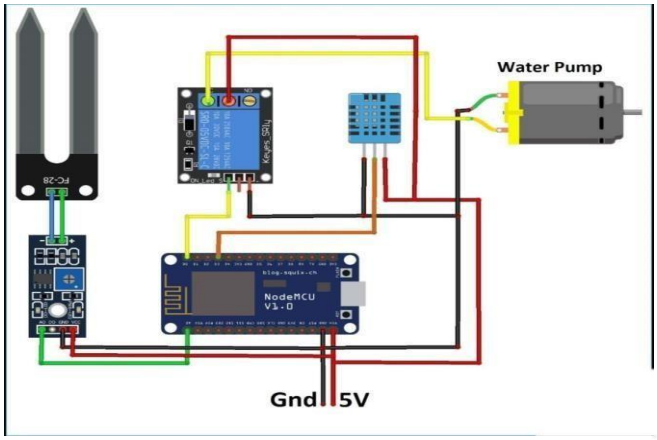


Fig 7:CIRCUIT DIAGRAM

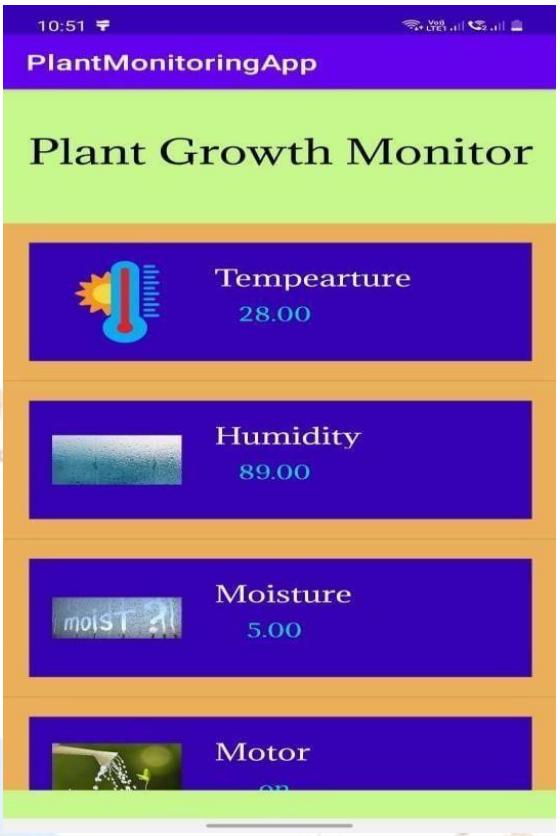
Fig 8. Working Display

When power supply is ON, the input module of three sensors (DHT11, moisture) start to activate.

When sensors get ON it will read the data from soil and from surrounding Values are sent through API's to database.

Once the API are called it shores the data In Online webhost cloudFront end data is received by the API in order of read only data and there is only update data allowed by front end to update Motor State. the Interface.According to the values that are detected by sensors motor will turn ON/OFF.If Moisture and Humidity is below threshold value, then the motor is turn ON.If moisture and humidity level is high, then it will stop the motor and water supply will also stop.

Fig 9 .. Android App Interface



IV.CONCLUSION

A system to monitor temperature, humidity, moisture levels in the soil was designed and the project provides an opportunity to study the existing systems, along with their features and drawbacks. Agriculture is one of the most waterconsuming activities. The proposed system can be used to switch the motor (on/off) depending on favorable condition of plants i.e., sensor values, thereby automating the process of irrigation. which is one of the most time efficient activities in farming, which helps to prevent over irrigation or under irrigation of soil thereby avoiding crop damage. The farm owner can monitor the process online through Front End Structure. By this work, the wastage of water and the consumption of power by motor can be reduced so that they are conserved for the future use. Through this project it can be concluded that there can be considerable development in farming with the use of IOT and automation.

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