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## IOT Based Plant Monitoring System

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**Abstract:** In recent years, the growing need for organic farming requires continuous monitoring of plant health. To ensure quality and quantity this is very important. Therefore the aim of this study is to improve remote monitoring a system that continuously monitors soil moisture in the plant. Wireless Sensor Network (WSN) is connected to the Internet for Objects (IoT) to achieve the above purpose. In addition, to improve network life time, Motivated Average Rated Rate (EWMA) event algorithm is acceptable to the proposed research. Establishment is related to redesign development of Io based based IOT based plant monitoring system. In IOT based plant monitoring system Liquid water is used. The the proposed system contains the web default ON / OFF request for motor, which will reduce human effort. With the help of the application one can check whether electricity is available or not. If not control and operation of the file the system is transferred to the solar panel. The system provides alarm system for automatically motor ON / OFF is not available of the user. The farmer wants to keep everything he owns results so they can access database at any time they want through this android application.

### I. INTRODUCTION

As the world tends to new technology too Implementation is a necessary goal for agricultural development as well. Much research has been done on the agricultural sector. Many projects demonstrate the use of a wireless network network to collect data from different sources the sensors are plugged into various nodes and transmit via wireless the rule of thumb. The data collected provides information about the variance natural features. Monitoring environmental features is not the way to the perfect solution to increase crop yields. There are numbers for other factors that reduce productivity to a large extent. Therefore automation should be used in agriculture to overcome this problems. So, in order to provide a solution to all such problems, of course needed to develop an integrated system that will take care of all factors affecting the product in all categories.

Wireless Sensor Network (WSN) technology, where the data collected from the field of interest is located is transmitted via a wireless link. WSN can be used on various fields such as surveillance, wireless scales, control, etc. in the field of agriculture with precision and organic farming, it is important to continuously monitor I fields as specified on the site. Monitor plant health it is important to enrich the production of food grains. The ground moisture is one of the first things in plant life. The water stays in the ground as a small film material in the supply nutrients in plant growth [1]. The main purpose of this paper is to establish plant a soil moisture monitoring system that does that user to monitor plant health remotely. Wireless communication, Zigbee technology is used to collect data then transferred to server. To expand WSN time, Event Detection Algorithm (EDA) is accepted.

#### A. Working

Plant Monitoring-based IoT program is an Android-based remote operating system. The nerves detect moisture in the soil and, according to the source, provide the farmers with water to irrigate crops. It is especially useful for plants such as rice that require extra handling and water supply.

- 1) The system is wifi based which helps with easy access and when there is a power cut the solar panel plays the role of power supply.
- 2) The system also maintains crop growth and provides weather reports.
- 3) It also has a pest control program that you want and provides chemical pesticides and antiseptics.
- 4) The system sets a timer for irrigation and alerts it when times arise.

### II. COMPONENTS USED

#### A. GSM Module

The GSM modem can accept any SIM GSM network operator and can acts as a mobile phone with its own unique numbers. The need to use this can apply the RS-232 protocol which can be simplified connected to the controller. It can be used as a phone where it can be send and receive SMS and make calls. GSM modem connected on the controller with RS-232. SMS is sent via save on number using AT Commands. "Attention" commands used by the controller to control GSM in do the job you love. It also has reverse power protection and LED notifications. Operates at 900/1800 MHz.

### B. Soil Moisture Sensor

Soil moisture sensor senses the moisture sensor of soil. The sensor has both analog and digital output. The digital output is adjusted and the analog output limit may vary. It applies to the principle of open and short circuit. Output is high though low is indicated by LED. When the soil is dry, at the moment it will not go through it so it will act as an open circuit. So the result is said the chief. When the soil is wet, the current will pass from one end to the other and the region is said to be short and output will be zero. The sensor is a platinum bound to form a file high efficiency. The range of hearing is also high. It is anti-rust and so on the sensor has a long life that will be able to pay the farmer the leastcosts.

### C. Temperature Sensor

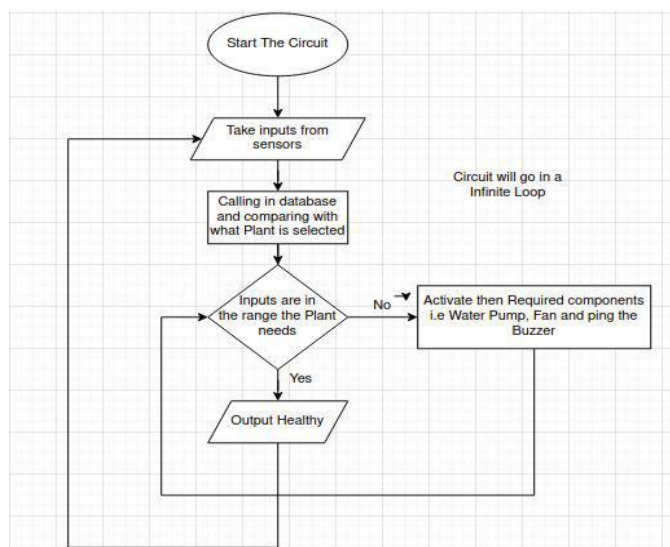
The LM 35 sensor is widely used because of its output voltage corresponds to a temperature measurement of Celsius. It does not give any external cut. It has a wide range of performance. Average output is 5V. The result will increase 10mV with each degree increase in the heat. The range is from -55 degrees to +150 degrees. There are three terminals like Vcc, Ground and analog sensor. It's eating low amount of electricity. Therefore, save energy. It's too much efficient for farming. It is useful to use.

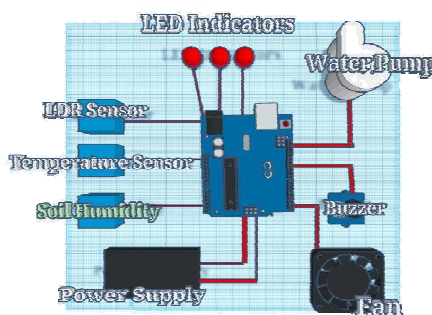
### D. PIR Sensor

All materials with a temperature above zero completely emit heat energy in the form of radiation. It has been invisible to human eyes ever since emits infrared wavelengths. PIR sensors do not detect or measure heat, instead they receive infrared radiation emitted or visible from something. It is used to find the movement of people, animals or other objects. They are widely used in burglar alarms as well automatic lighting systems When a person passes by field, the temperature at that time will rise from room temperature. The sensor converts the transition from the output to the output Voltage and this creates discovery.

## III. LITERATURE SURVEY

We have studied many previous works done in this field by different researchers. Use of technology in the field of agriculture plays important role in increasing the production as well as in reducing the man power efforts. Research for improving agricultural production by utilizing different controllers like PIC microcontroller,8051 controller, ARM 7 etc or also monitoring done by different communication technology like Zigbee, Wireless sensor network(WSN),even using GSM. Greenhouse monitoring and control system based on wireless Sensor Network by Marwa Mekki et al.In this paper a WSN was implemented by deployed wireless sensor nodes in a greenhouse with temperature, humidity, moisture light, and CO2 sensors. To control the environmental factors, the used microcontroller programmed to control the parameters according to preset values, or manually through a user interface panel. A ZigBee based energy efficient environmental monitoring alerting and controlling system by K. Lokesh Krishna et al, the paper based on paper a novel ZigBee based energy efficient environmental monitoring, alerting and controlling system for agriculture is designed and implemented. This system utilizes an ARM7 processor, various sensors and ZigBee communication module. Sensors gather various physical data from the field in real time and transmit it to the processor and to the end user via ZigBee communication.





#### IV. CONCLUSION

For future developments it can be enhanced by developing this system for large acres of land. Also the system can be integrated to check the quality of the soil and the growth of crop in each soil. The sensors and microcontroller are successfully interfaced and wireless communication is achieved between various nodes. All observations and experimental tests prove that this project is a complete solution to field activities and irrigation problems. Implementation of such a system in the field can definitely help to improve the yield of the crops and overall production. This proposed work is made to help the farmers and make their harvest economical by helping them in security purpose travelling side, college and for every bodies etc. 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. This system provides complete monitoring action of sensors in fields that is very easy to control the field. It also provides huge security to the plants.

#### V. RESULT

This system continuously monitor, control with feedback system and provide healthy environment to the plant This project is being researched by a lot of reseachers and is being improved daily. We need the existing observed data about the plant and the needs of plant in terms of envoinment it needs. Thus this system creates real time data about plant environment

#### VI. FUTURE SCOPE

System performance can be improved depending on operating speed, memory capacity, and the rotation time of the microcontroller commands through another the last major controllers.

The number of channels can increase to the top interface the number of sensors possible through advanced versions of controllers.

The system can be changed using the data logger and the LCD graphical panel indicates measured sensor data over a period of time

#### VII.ACKNOWLEDGEMENT

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