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I0T BASED SMART PLANT MONITORING SYSTEM

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ABSTRACT

In the iot based smart plant monitoring system we can monitor and controlusing iot . It is very difficult to control scattered without a remote environment monitoring system. In recent years, there appeared a canopy remote monitoring system based on Ethernet.In this project we use different modules such as IOT, arduino as controller, Temperature sensor, Moisture sensor, Humidity sensor. This project uses sensors such as A humidity sensor is also given to know about the atmospheric humidity of that place. By having knowledge of all these one can take action accordingly. Moisture sensor sense the soil is dry or wet. If soil is dry automatically water pump will get ON. And the sensor values are given to ADC to get processed by arduiono controller. The temperature sensor LM35 senses the temperature and converts it into an electrical (analog) signal, which is applied to the micro controller through ADC. The analog signal is converted into digital format by the analog-to-digital converter (ADC). If temp increases more than set threshold value. Automatically fan will be ON. In this project we are using dry/wet sensor, humidity sensor and Temperature sensor. In an industry during certain hazards is will be very difficult to monitor the parameter through wires and analog devices such as transducers. To overcome this problem we use wireless device to monitor the parameters so that we can take certain steps even in worst case. Few years back the use of wireless device was very less, but due the rapid development is technology now-a-days we use maximum of our data transfer through wireless like Wi-Fi, Bluetooth, WI-Max, etc. This project is designed as a plant monitoring system based on IOT.The condition of soil and the temperature maintained are being displayed on LCD and the same values are updated in the internet through IOT module interfaced to the controller.

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 grow plants 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 man power hence reducing the error.for a large scale area, it is quite impossible for a farmer to monitor the efficiency of the system by implementing this technology, the farmers can easily monitor the system using there smart phone

II.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. Then necessary actions are initiated to perform action on behalf of people to reduce or eliminate the need of human labor.

Embedded based Green House Monitoring system using PIC microcontroller by **S. Arul Jai Singh at al** ,the paper deals with a simple, easy to install, microcontroller-based circuit to monitor and record the value of temperature, humidity, soil moisture and sunlight of the natural environment that are continuously modified and controlled in order optimize them to achieve maximum plant growth and yield. The controller communicates with the various sensor modules in real-time in order to control the light, aeration and drainage process efficiently inside a greenhouse by actuating a cooler, fogger, dripper and lights respectively according to the necessary condition of the crops..

A smart IoT system for monitoring solar PV power conditioning unit by B. Shrihariprasath The paper is effective implementation of an intelligent remote monitoring system for solar Photovoltaic (PV) Power Conditioning Unit (PCU) which is used in a greenhouse environment. They designed a smart remote monitoring system based on internet of thing for monitoring Solar PV PCU. This system had incorporated remote monitoring for solar PV PCU through internet using host, network GPRS (Global Positioning Radio Service), embedded system gateway and other components.

III.BLOCK DIAGRAM

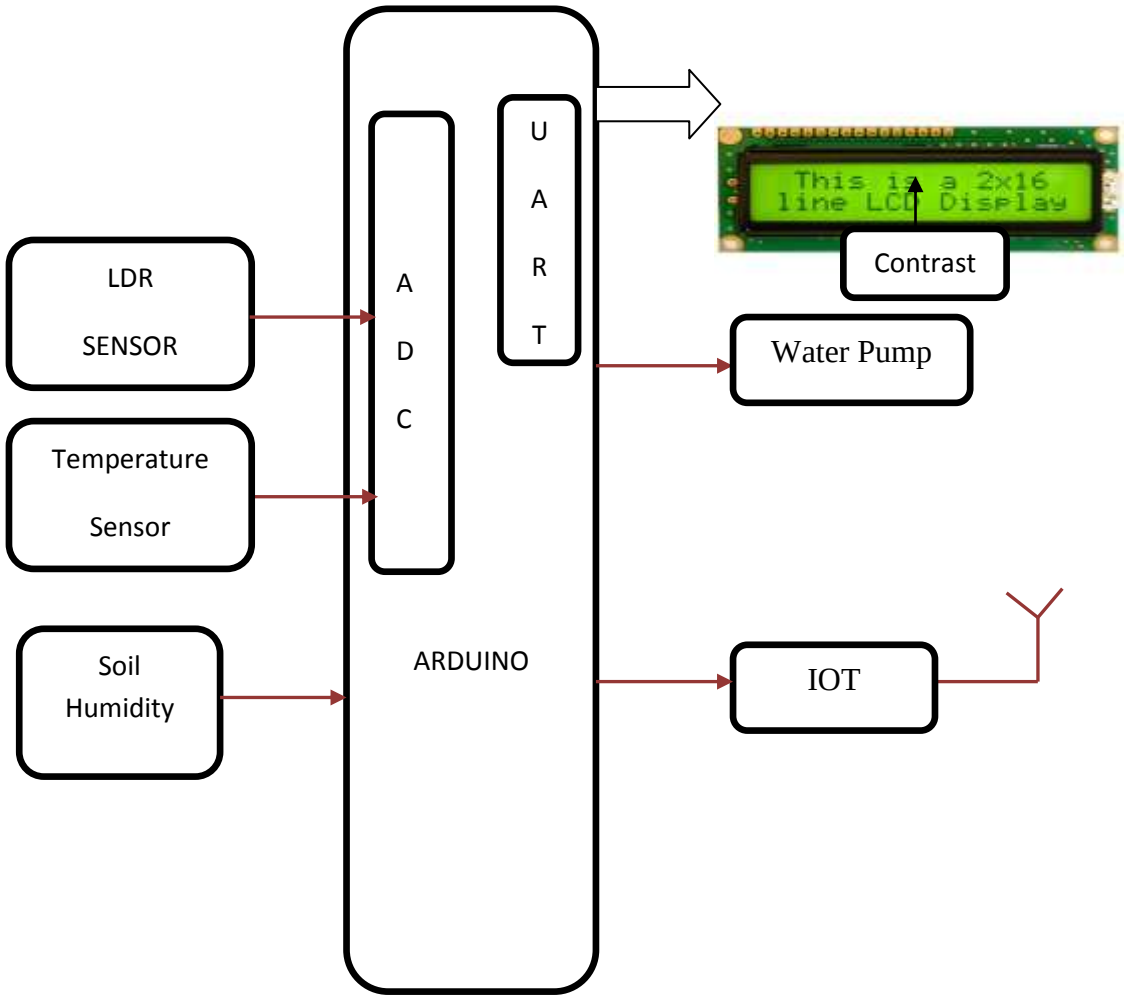

Fig: Diagram of plant monitoring system

IV.WORKING

Arduino is an open source computer hardware and software company, project, and user community that preassembled form, or as do-it-yourself (DIY) kits.Arduino board designs use a variety of microprocessors and controllers. The boards are equipped with sets of digital and analog input/output (I/O) pins that may be interfaced to various expansion boards (shields) and other circuits. The boards feature serial communications interfaces, including Universal Serial Bus (USB) on some models, which are also used for loading programs from personal computers. The microcontrollers are typically programmed using a dialect of features from the programming languages C and C++. In addition to using traditional compiler toolchains, the Arduino project provides an integrated development environment (IDE) based on the Processing language project.

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In this project we use different modules such as IOT, arduino as controller, Temperature sensor, Moisture sensor, Humidity sensorl. This project uses sensors such as a humidity sensor is also given to know about the atmospheric humidity of that place. By having knowledge of all these one can take action accordingly. Moisture sensor sense the soil is dry or wet. If soil is dry automatically water pump will get ON. the sensor values are given to ADC to get processed by arduino controller. The temperature sensor LM35 senses the temperature and converts it into an electrical (analog) signal, which is applied to the micro controller through ADC. The analog signal is converted into digital format by the analog-to-digital converter (ADC).If temp increases more than set threshold value. Automatically fan will be ON.In this project we are using ARM7, dry/wet sensor, humidity sensor and Temperature sensor. The condition of soil and the temperature maintained are being displayed on LCD and the same values are updated in the internet through IOT module interfaced to the controller. and whenever smoke sensor is detected buzzer will be ON.

The LM35 series are precision integrated-circuit temperature sensors, whose output voltage is linearly proportional to the Celsius (Centigrade) temperature. The LM35 thus has an advantage over linear temperature sensors calibrated in ° Kelvin, as the user is not required to subtract a large constant voltage from its output to obtain convenient

Soil moisture sensors typically refer to sensors that estimate volumetric water content. Another class of sensors measure another property of moisture in soils called water potential; these sensors are usually referred to as soil water potential sensors and include densitometers and gypsum blocks.

V.CONCLUSIONS

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.

VI.FUTURE SCOPE

1) The performance of the system can be further improved in terms of the operating speed, memory capacity, and instruction cycle period of the microcontroller by using other high end controllers. The number of channels can be increased to interface more number of sensors which is possible by using advanced versions of controllers.

2) The system can be modified with the use of a data logger and a graphical LCD panel showing the measured sensor data over a period of time.

3) A speaking voice alarm could be used.

4) The device can be made to perform better by providing the power supply with the help of renewable source.

5) Time bound administration of fertilizers, insecticides and pesticides can be introduced.

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