International Journal of Scientific Research in Computer Science, Engineering and Information Technology
© 2018 IJSRCSEIT | Volume 3 | Issue 3 | ISSN : 2456-3307

Smart Plants Monitoring System

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ABSTRACT

A framework that can gather the data identified with greenhouse environment and yield status and monitor the system automatically in view of the gathered data. By throatily observing periodic conditions, this study has the reason for securing connection between sensors. Blynk Server will give information of ongoing situation. Through long time running and functional utilizing ,the framework has been demonstrated that it has numerous points of interest. To monitor the environment inside greenhouse different parameters have been considered such as light ,humidity. Using different sensors like humidity sensor , LDR ,which will be interfaced with microcontroller,. It is a closed loop System that will execute control action to adjust humidity , light intensity if any unwanted errors (high/low) occur notification will be send to the server.

Keywords: Sensors , Internet Of Things(IOT) , Blynk Server.

I. INTRODUCTION

A greenhouse is an exceptionally outlined homestead structure building to give a more controllable environment to better harvest generation, crop security, product seeding and transplanting. Also, the accessible space of area for developing yields has been altogether diminishing, following to more space of area is vigorously utilized for housing and commercial ventures as a part of this present day period. In most tropical nations, the utilization of greenhouse has been developed for cost effective farming i.e. organic products, new blossoms and vegetables generation.

The effectiveness of plant creation inside greenhouse depends fundamentally on the conformity of ideal atmosphere development conditions to attain to high return at low cost, great quality and low natural burden. To attain to these objectives a few parameters, for example, light, temperature and humidity, soil moisture must be controlled ideally given certain criteria through warming, lighting, ventilation and water creation.

Persistent checking and controlling of these ecological variables gives significant data relating to the individual impacts of the different elements towards acquiring most extreme harvest creation. Greenhouse situations present remarkable difficulties to great control. Temperature changes happen quickly and fluctuate broadly relying upon sun powered radiation levels, outside temperatures and moistness levels in the greenhouse. Poor light intensity and high stickiness frequently bring about poor natural product set and quality. More exact control can decrease heating fuel and electrical expenses, expand the efficiency of labourers by empowering them to go to more important assignments, empowering directors and producers to settle on better administration choices and invest more energy dealing with the procedure.

The objective of Smart Plants monitoring System project is to monitor various parameters of plants by staying away and controlling it. In order to maintain humidity we are using humidity sensor which will periodically senses the humidity contents around plants and notifies whenever desirable values get

changed To maintain the light intensity which mainly required for plants growth we are using light sensors and whenever desirable value get changed the bulb will glow to maintain that light intensity. By staying away from greenhouse, we can control various devices (Bulb, Water pump, etc.)through a mobile application.

II. METHODOLOGY

An automated greenhouse, with a humidity and light control system and a watering system is built . The microcontroller used to create the automated greenhouse is ATMEGA AVR microcontroller. The humidity and light control system consists of a humidity and light sensors, a cooling fan. The fan is controlled separately to adjust the temperature. The watering system consists of a soil moisture sensor, a water tank, a water circulator pump . The watering is turned on or turn off based on the soil moisture level read from the sensor.

Humidity and Light Control System

- ✓ Humidity sensor- Tracks the humidity and sends the details to Blynk Server
- ✓ Light sensor- To provide adequate amount of the light to plants.

Watering System;

The watering system underwent two tests to analyse the reliability of the system. The first test was to examine whether the circulator pump gives the same amount of water each time to determine the reliability of the pump. The second test was about measuring the soil moisture level at the same spot during a long period of time. If the moisture level is stable around the same value the sensor could be seen as reliable.

The accepted range of soil moisture values was determined by sampling values when the soil was estimated through hand contact with the soil to be too dry or too wet. A flower pot with soil was used to do the measurements. The plant was watered until it got to the exact point where it was determined to be too wet. The value from the sensor became the upper limit. The pot was then exposed to heat in order to speed up the evaporation. The soil was too dry at this point. It was therefore watered until it got to the exact point were it was determined not to be dry anymore. This value became the lower limit.

The watering system was put through its tests until they showed similar results to minimize the possible error sources. If both of these tests were approved, the system was deemed reliable.

III. SYSTEM DESIGN

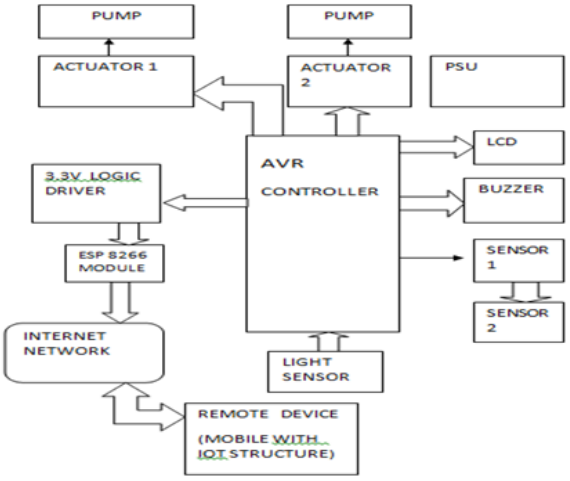

Figure 1. Block diagram

The system will nearly screen and control the small scale climatic parameters of a greenhouse on a usual premise. For the development of products or particular plant species which could enhance their creation over the entire yield development season and to kill the challenges included in the framework by falling human negotiation to the best feasible degree. The framework contains sensors, Arduino which is helping us the use of micro controller easily and actuators (Relay module).

At the point when any of the above-mentioned climatic parameters cross a security limit which has

to be kept up to secure the yields, the sensors sense the change and the micro controller reads this from the information at its data ports in the wake of being changed over to an advanced frame by the ADC. The micro controller then performs the required activities by utilizing transfers until the strayed-out parameter has been taken back to its ideal level. Since a micro controller is utilized as the heart of the framework, it makes the set-up minimal effort and compelling all things considered. As the framework likewise utilizes a server to show for constantly alarming the client about the condition inside the greenhouse, the whole set-up gets to be easy to use.

IV. CONCLUSION

Internet on things and cloud computing collectively makes a system that control green house effectively. This system will sense all the environmental parameter and sends that data to the user via cloud. User will take controlling action according to that this will done by using actuator by using this system. This asset allows the farmer to improve the cultivation in a way the plants need. It leads to higher crop yield, prolonged production period, better quality, and less use of protective chemicals.

V. REFERENCES

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