Smart Greenhouse System using IOT

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***Abstract*: This work is primarily about changing the current agricultural process by using modern techniques and multiple sensors for better farming.it provides a small model of a smart greenhouse, which can help to the farmers to do their work in a farms automatically without the use of any manpower any manual work as compare to the traditional way. Greenhouse is an a closed structure and it will protects the particular plants and crops from the extreme weather conditions such as heavy wind and hailstorm, unwanted radiations, and insect and pest attacks which harm the plants. The supply of water to crops in this smart greenhouse is carried out automatically by drip watering system, which works according to the particular soil moisture requirement on the basis of that it required amount of water is provided to the plants. Based on data from given by soil moisture sensor, proper amount of minerals can be applied to the plant by using drip watering techniques.**

***Index Terms*: Automatic Mode, Battery, Destination Point, Garbage Seperation and Evacuation, Manual Mode, Node MCU, Robotic Arm, Smart City, Servo Motors.**

• INTRODUCTION

Agriculture business in India is as yet completed in traditional way and falls behind in incorporating present day innovations. Around 55 percent level of Indian populace has been occupied with farming and partnered exercise, which establish just 15 percent of GDP so it turns out to be a lot significant for the partners required to come out of the traditional farming practices and modernize the farming utilizing innovation. The financial commitment of agribusiness to India Gross domestic product is relentlessly declining with the nationwide based financial development while enormous number of individuals keeps on working in rural part. Consequently, there is a prompt need to improve the framework, which can build the yield and produce solid natural nourishment. Farming in India is as yet did in customary way and lingers behind in coordinating present day innovations. By utilizing IoT, we can anticipate the expansion underway with ease by checking the effectiveness of the soil moisture, temperature, humidity in the particular environment, rain fall observing, checking the capacity limit of water tanks. The blend of conventional strategies with most recent advances technologies such as Internet of Things and Remote Sensor Networks can prompt farming modernization. The Wireless Sensor Network, which gathers the information from various types of sensors and send it to the primary server by using the wireless protocols. There are numerous different factors that decrease the effectiveness of the productivity of plants. The harvest yield is declining in view of erratic storm rainfalls, water shortage and inappropriate water use.

• METHODOLOGY

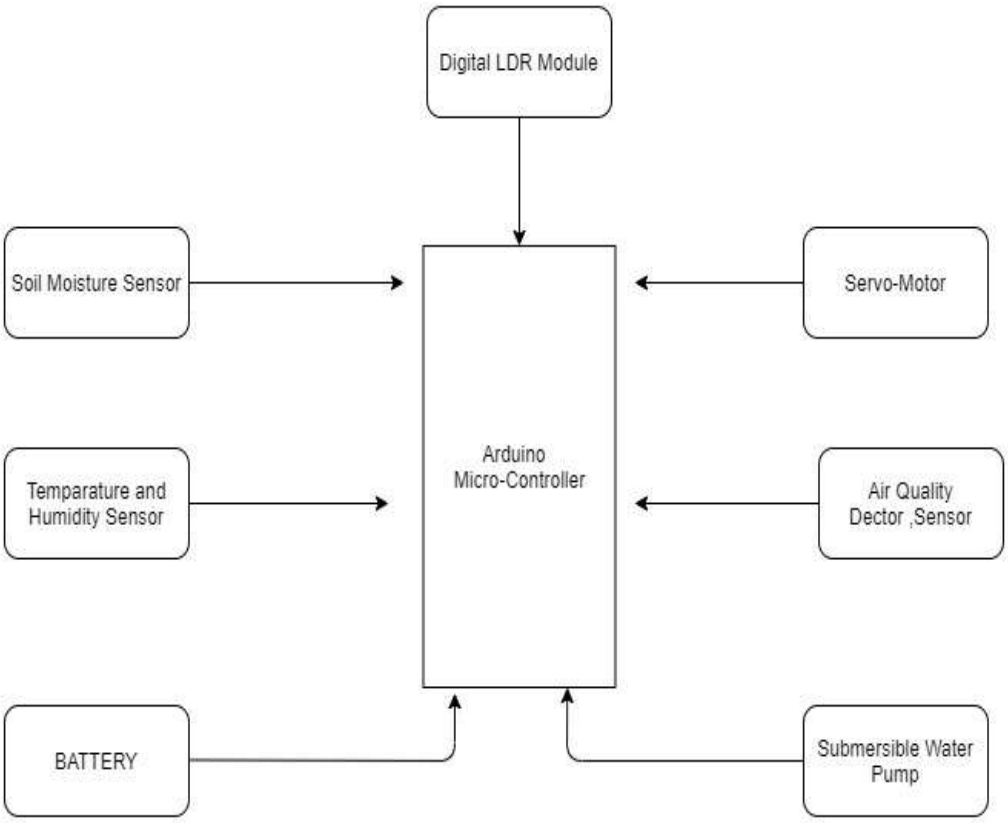
A. Irrigation system

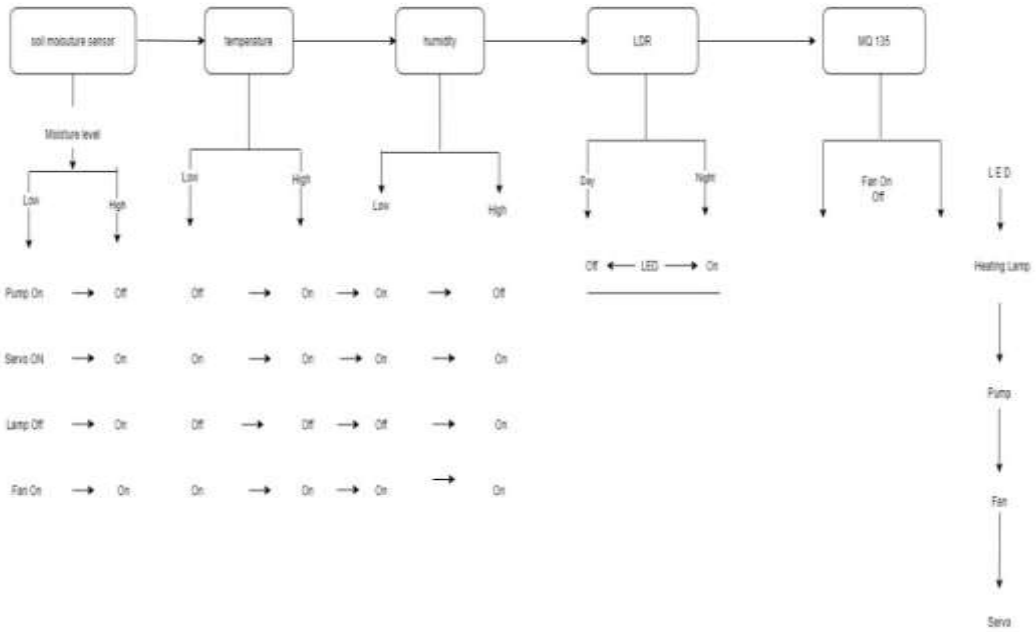
For ideal utilization of water, we use trickle water system. It is an water system technique to spare water by permitting water to target the foundations of plant. Water acquired from all the sources like channel, water collecting, tube well and so on are not permitted to flood the field straight forwardly, rather it is first put away into an underground tank. Tank is furnished with a ultrasonic sensor which gauges the degree of water persistently and alarms the client with a sms at whatever point water level falls beneath the limit mark. The client at that point sends a sms to the gsm module, which recovers the sms and triggers the hand-off to switch on the cylinder well. Chip turns off the siphon once the underground tank is filled.

B. Air Temperature and Humidity Control

We place temperature and moistness sensor inside the keen nursery to quantify moistness and temperature. When temperature transcends a specific level, miniaturized scale controller will trigger transfer joined to the fogger, which will sprinkle modest water beads of size of micron which will stay suspended noticeable all around and cut the temperature down. In the event that the air dampness falls beneath the set worth, comparative system will be activated and the little water beads will keep up the family member dampness (RH). In the event that the relative moistness is at edge and further cooling is required, Peltier module is utilized which can be controlled by sun based boards and can direct the temperature by cooling or warming according to the necessities.

System Architecture:





• APPLICATIONS

The project has a great application in agriculture sector and can be used in greenhouses and agriculture farms. Temperature monitoring and controlling action can be used in home or various halls like conference room, seminar hall to control the temperature of room. With little modification, this project can be used in Mechanical companies to measure various parameters of operating machines like temperature and light.

• CONCLUSION

The system do not need any human interaction. It also includes with a database helpful for future analysis and reports. System Endorse smart city infrastructure, using involvement of advanced technologies in the field of robotics, which is branch of Artificial Intelligence. Smart city infrastructure for upgrading itself needs to ease the quality and the standard of living for its citizens.

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REFERENCES

[1] SayliMahadik, Ankita Chavan, Prathamesh Yerunkar, "Voice Operated Floor Cleaning Robot", 2018

[2] G. Sivasankar, B. Durgalakshmi, K. Seyatha, Mepco Schlenk Engineering College, Sivakasi, India, 2017

[3] Mohamed Asif Hassan A.H, Jagannathan Srinivasan, L. Keshav Bharadwaj, Harish Ganesan, "IoT Based Garbage Management System For Smart Cities", 2016

[4] http://www.iraj.in/journal/journal_file/journal_pdf/2-449-152517063833-36.pdf Harish Ganesan, "IoT Based Garbage Management System For Smart Cities", 2016

[5] http://www.iraj.in/journal/journal_file/journal_pdf/2-449-152517063833-36.pdf