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 [ijirset@gmail.com](mailto:ijirset@gmail.com)

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**Department of ECE, Adhiyamaan College of Engineering, Hosur, Tamilnadu, India**

# **IOT Based Green House Environment Monitoring System**

**M.Venkatesan<sup>1</sup>, R.Sandhiya<sup>2</sup>, S.A.Sangeetha Kamala<sup>3</sup>, M.Yuvashree<sup>4</sup>**

Associate Professor, Department of Electronics and Communication Engineering, Adhiyamaan College of Engineering, Dr. M.G.R Nagar, Tamil Nadu, India<sup>1</sup>.

U.G Students, Department of Electronics and Communication Engineering, Adhiyamaan College of Engineering, Dr. M.G.R Nagar, Tamil Nadu, India<sup>2,3,4</sup>.

**ABSTRACT:**Greenhouses are controlled area environment to grow plants because the limitation of existing greenhouse plants is that it's not operated mechanically and should be operated manually with totally different records. so as to attain the optimum growth of plants, the continual observation and dominant of environmental parameters like temperature, humidity, soil wetness, light power etc. area unit necessary for our greenhouse system. This paper demonstrates a checking and system for nursery through Internet of Things (IOT). The system can screen the simple common conditions, for example, moistness, soil immersion, temperature, closeness of fireside, etc. All the setting parameters knowledge area unit send to cloud victimization wireless local area network module Node MCU esp8266. If any condition crosses bound limits connected mechanism are going to be turned ON. The microcontroller can activate the motor if the world viscosity is not usually a selected price. The user will screen and manage parameters through mobile and pc. The model was tried underneath varied blends of obligations to our examination workplace and also the check outcomes were found obviously.

**KEYWORDS:**Greenhouse, Environment, Growth of Plants, Environmental parameters, Internet of things, esp8266, Microcontroller.

## **I. INTRODUCTION**

Greenhouse is a crucial half in agriculture and gardening sectors. It is accustomed grow plants below controlled weather conditions for optimum production. Crop production and quality have considerably inflated with utilization of greenhouse that has helped us to address the continued rising demands. Facilities agriculture is one amongst the rising knowledge domain analysis field, that result from the fashionable engineering technology, automation technology and knowledge technology admixture along. usually, it's necessary to develop an impression system to implement these studies. trendy technology application in greenhouse setting, will improve the assembly production efficiency and security, scale back cost. The advance of agricultural automation degree, still scale can reduce the strength, improve worker management level, therefore bring immense economic advantages and social advantages.

A greenhouse could be a structure with differing kinds of covering materials, like glass or plastic roof and regularly glass or plastic walls. It heats up as a result of incoming visible radiation from the sun is absorbed by plants, soil. Glass is clear to the current radiation. The warm structures and plants within greenhouse re-radiate this energy within the infra-red. To that glass is partially opaque, and there's some heat loss because of conductivity and increase in temperature within the greenhouse. The greenhouses square measure full of setting parameters like temperature, humidity, wet and lightweight.

## II. RELATED WORK

Greenhouse observance and Automation victimisation Arduino: A Review on exactness Farming and net of Things (IoT), The accessing knowledge technology, cheaper internet connections, and straightforward hardware unit of measurement essential details among the event. It defends plants against rainy seasons, storms, wind and frost. Higher yields with space improvement, for instance, planting vertically. extra economical consumption of irrigation.

Monitoring and dominant of Greenhouse exploitation Microcontroller, A step by step approach in coming up with the microcontroller primarily based system for activity and management of the four essential parameters for plant growth, i.e., temperature, humidity, soil wet, and lightweight intensity, has been followed.

Real-Time Implementation of Greenhouse observance System supported Wireless sensing element Network, the projected vogue used to management and monitor the varied environmental parameters of greenhouses in real time systems pattern WSN and ZigBee protocol, parameters embody concentration of gas, temperature, lightweight and humidity.

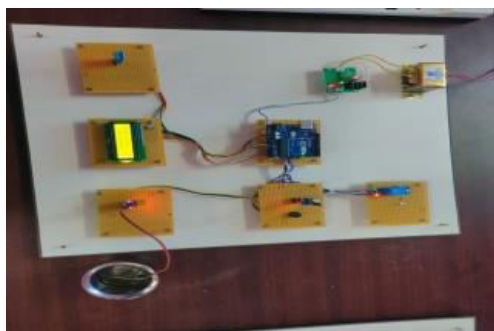
IoT primarily based good Greenhouse Automation victimisation Arduino, is that the Arduino platform for greenhouse looking, dominant temperature and soil status with the help of net server victimization IOT. useful for little scale farmers and inexperienced owners.

## III. METHODOLOGY

The device nodes distributed on the various areas of the farm each covering the positive areas. The node consists of vary of devices that area unit temperature device, status device and soil wet device with power managed system that is running from the renewable power offer procurable at intervals the sector. The Arduino microcontroller at intervals the node takes all the device readings data and sends it over to the entre. it's simple light-weight protocol for machine-to-machine communication designed for IoT. It works on publish subscribe basis. It publishes device data and sends it to the device that area unit signed thereto. It transports data kind device to the entree from each node. The pv system is also a solar power system which will supply solar power to the system. the various IoT service suppliers, provides USA the platform such to supply data to users and public. The nodeMCU is utilized for external WiFi equipment to connect to the server. The motor is connected for the installation, by reading the data provided from the soil wet device.

## IV. EXPERIMENTAL RESULTS

Figures shows the results of Greenhouse atmosphere watching system supported IOT. (a) Hardware association (b) digital display show for wet level (c) digital display show for temperature and humidness. (d) Dashboard of Iot application.



(A)



(B)

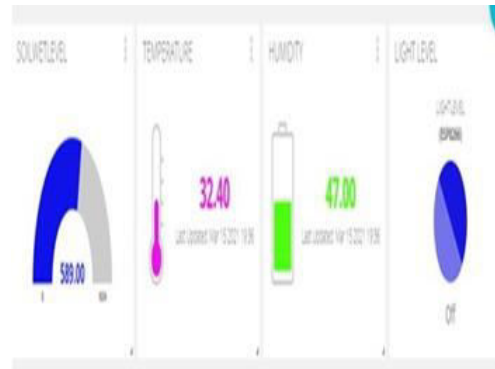
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(C)



(D)

## V.CONCLUSION

It is enforced with Arduino platform for greenhouse watching, dominant temperature and soil wetness with the assistance of internet server victimisation IOT. This style has several blessings to use a brand new technology to the greenhouse for shielding agriculture and avoid victimisation of wire association systems and provides economical within the personnel saving. The system has been monitored by causation SMS messages to organizer node. The results seem that the system has sensible stability, low power consumption, low cost, and efficiently reducing irrigation water consumption, and easy. The responsibility and showing intelligence for watching several environmental factors of greenhouses will be improved by victimisation our planned style.

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## BIOGRAPHY



Mr. M. Venkatesan  
 Assistant Professor,  
 Electronics And Communication  
 Engineering Department,  
 Adhiyamaan College of  
 Engineering, Anna University.

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Ms. R. Sandhiya  
Electronics And Communication  
Engineering Department,  
Adhiyamaan College of  
Engineering



Ms. S. A. Sangeetha kamala  
Electronics And Communication  
Engineering Department,  
Adhiyamaan College of  
Engineering



Ms. M. Yuvashree  
Electronics And Communication  
Engineering Department,  
Adhiyamaan College of  
Engineering



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