# APPENDIX 1

## Automated Green House society

## Review Paper

***Submitted by***

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***in partial fulfillment for the award of the degree of***

## NAME OF THE DEGREE

Bachelor of engineering

**IN**

Computer science

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#### **Chandigarh University**

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## BONAFIDE CERTIFICATE

Certified that this project report **“Automated green house society “**is the bonafide work of**”Ankush grover ,Shashi Ranjan Mehta ,Varun kumar harsh ,Parth Gupta ,Prince Kumar Saini ”** who carried out the project work under our supervision.

**SIGNATURE SIGNATURE**

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Submitted for the project viva-voce examination held on 13-05-2022

#### **INTERNAL EXAMINER EXTERNAL**

**EXAMINER**

**Acknowledgement**

Primarily, we would thank God for being able to complete this project with success

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**Introduction**

Automated green house society refers to the society where plants kingdom, animals kingdom and modern technology stays at proper collision in this neither animals kingdom harms technology nor plants kingdom is effected by technology. With the help of modern technology agriculture society can grow strong crops that will turns improves the quality of the crops and enhances the performance of the farmers An efficient and effective greenhouse monitoring and controlling system can increase productivity, can reduce risk of production, and can provide food all year round by maintaining the intensity of light, the level of humidity, the level of temperature and the moisture level of soil

Automation of greenhouse environment using simple timer-based actuator or by mean of conventional control algorithms that requires feedbacks from offline sensors for switching devices are not efficient solution in large-scale modern green house

Wireless instruments that are integrated with artificial intelligence algorithms and knowledge- based decision support systems have attracted grower attention to their implementation flexibility ,contribution to energy reduction and yield predictabililt

**OBJECTIVE :-**

The purpose of a greenhouse is to magnify the light of the sun while protecting plants from freezing temperatures. Capturing the sun’s rays and trapping the resulting heat can quickly create an oven, so the greenhouse gardener must learn how to prevent temperature extremes – cooling the space down or keeping it warm as necessary for plant health.

The small, enclosed space of a greenhouse provides a sealed environment to protect plants from the pests and diseases which may ravage your outdoor garden, however once those issues make their way inside, they can spread quickly and be difficult to eradicate.

For all those reasons, gardening in a greenhouse is a time investment. Constantly monitoring the temperature, moisture levels and overall health of the plants you grow there is a necessity for success. Yet, having a greenhouse is on the wish list of many gardeners, and it can be incredibly rewar ding once you learn the ropes.

**Literature review:**

Automated green house society is a concept or idea where a individual can protect the nature in various ways. The idea of growing plants in environmentally controlled areas has existed since Roman times. The Roman emperor Tiberius ate a cucumber like vegetable daily.

In modern society, the consumption of fruits and vegetables has become the normal. A variety of fresh fruits and vegetables should be always accessible. However, the northern climate prevents the growth of certain fruits and vegetables, especially during winter. This results in import from southern countries, which in turn has some drawback

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**Advantages of Smart Greenhouse Automation:**

* Maintaining a controlled temperature within a greenhouse environment is crucial. Temperature fluctuations can damage or kill your plants in only a few hours. Remote monitoring systems protect valuable plants from extreme temperature fluctuations. Watch to learn more about these cost-effective systems.
* Keeping plants healthy and prosperous requires the best possible growing environment. But staying on top of all environmental changes and equipment statuses or failures can be a challenge. Watch to learn how you can monitor conditions like humidity fluctuations, security breaches, heater, fan, equipment and power failures.
* When your plants are at risk, every second counts. The sooner you discover a drop in temperature or an equipment failure, the more inventory you can save. Remote monitoring systems provide real-time updates, so you can take action fast.

Chart

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**Soil Moisture Sensor:**

The two copper leads act as the sensor probes. They are immersed into the specimen soil whose moisture content is under test. The conductivity of soil depends upon the amount of moisture present in it. It increases with increase in the water content of the soil that forms a conductive path between two sensor probes leading to a close path to allow current flowing through.

**Light Sensor:**

The light sensor is extremely sensitive in visible light range. With the light sensor attached to the system when the surrounding natural lights are low, it displays the digital values corresponding to the light intensity.

**Humidity Sensor:**

Humidity sensor is used for sensing the vapors in the air. The change in RH (Relative Humidity) of the surroundings would result in display of values.

Temperature sensor:

In the proposed greenhouse system, a temperature sensor of which the main part named IC LM35 has been used. The LM35 series consist of precision integrated circuit temperature devices with an output voltage linearly proportional to the Centigrade temperature. The LM35 device is operating over a −55°C to 150°C temperature range and the operating voltage is from 4V to 30V

When temperature crosses from a defined level or critical level, the system automatically turns on the fan. On the hand, if the measured temperature in case of normal range or comes below the defined level the fan turns off automatically

**Photo Sensor:**

It is continuously emitting a beam of light which can be infrared or ultraviolet rays and if there is any obstacle say a person is entering from the door then this beam of light will be reflected back. In this way motion or obstacle is detected.

**Light detection and control sensor:**

We use this sensor to turn the light on or off in day or night time automatically. It turns the light ON in dark or dusk condition and it will turn the light OFF otherwise .It means that the light will turn ON when the sunlight level goes below the set point and will turn OFF when the sunlight level is above the set point.

Graphical user interface

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**Conclusion**

The developed cost effective greenhouse model can be used to monitor and control temperature, light intensity, humidity and soil moisture of a greenhouse in order to increase productivity in farming especially in countries like Bangladesh where there is ample risk of insect infestation, harsh climate and increasing demand of food with the decrease of fertile land.

The model is fully automatic and so, does not require human interaction to smooth monitoring the plant as it is operated by solar power system with rechargeable battery.

In order to analyze the data, an Internet of Things based databases has included in this model. Besides, the authors presented a comparison table that clearly described the developed greenhouse model as state of the art greenhouse system. Moreover, a cost analysis table has added in this paper to depict affordable and cost effective greenhouse model for farmers. However, there are some future work needs to be done such as exact determination of soil texture and use of fertilizer aptly.

Reference-

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