# APPENDIX 1

## Automated Green House society

## A PROJECT REPORT

***Submitted by***

## Group 2 401(B)

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

## NAME OF THE DEGREE

Bachelor of engineering

**IN**

Computer science



#### **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**

Gudveen Sawhney Manoj Kumar

**SUPERVISOR HEAD OF THE**

### DEPARTMENT

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

We are very thankful to our teacher Mr Surpreet singh Who has given us the opportunity to make the review paper on the topic “**Automated green house society**”. we would also like to thank my project supervisor gudveen Sawhney mam to help a lot in your project under whose guidance we learned a lot about this project. His suggestions and directions have helped in the completion of this project.

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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

**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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**Things to be control in automated green house society**

* Temperature control
* Humidity control
* Watering system
* Soil moisture
* Misting systems
* Cooling systems

**Hardware –**

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

Humidity sensor-

A Humidity Sensor Unit known as HSU-07 Series has been used to implement the proposed greenhouse system. Its operating voltage is 0-7 Volt, operating temperature range is -20~+60 ℃, and operating humidity range is 20-90% RH [19]. Soil moisture plays an important role for growing good plants [21].

A soil moisture sensor has been used to determine the moisture of the soil. By placing two probes of soil moisture sensors inside the soil, value of moisture in the soil can be measured and the outcome is send to the owner of the greenhouse system using GSM via SMS

**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.

<https://www.community.ruggedboard.com/post/iot-smart-agriculture>

<https://www.researchgate.net/publication/322834975_Advances_in_greenhouse_automation_and_controlled_environment_agriculture_A_transition_to_plant_factories_and_urban_agriculture>