North South University

Department of Electrical and Computer Engineering

Senior Design Project

Krishi House

An IoT based smart greenhouse

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Faculty Advisor

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DECLARATION

We, hereby, declare that the work presented in this report is the outcome of our eight months work performed under the supervision of Ashfia Binte Habib, Department of Electrical and Computer Engineering, North South University, Dhaka, Bangladesh. The work was spread over a span of one of the final year courses, ETE 499, Senior Design Project, in accordance with the course curriculum of the Department for the Bachelor of Science in Electrical and Electronics Engineering program.

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Moumita Ferdoushi Shorony

Department of ECE

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Department of ECE

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APPROVAL

The senior project report on ‘ Krishi House, an IoT-based smart greenhouse’ by Moumita Ferdoushi Shorony (ID 1631125045) and Mehtaz Ahmed (ID 1331066045) Students of the Department of Electrical and Computer Engineering, North South University, Bangladesh. This report partially fulfills the requirement for the degree of Bachelor of Science in Electrical and Electronics Engineering in February 2022 and has been accepted as satisfactory.

Supervisor’s Signature

Ashfia B. Habib

(March 10)

Ashfia Binte Habib

Lecturer

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Department Chair’s Signature

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ABSTRACT

In Bangladesh, one of the main economic activities lies in the agricultural sector. Although the good presence of resources does not produce results equal to the availability. The cause of scarcity and incompetent use of technology, deficiency of knowledge and awareness among the agrarians, methods which are time-consuming, hard labor, and more expensive in the long run. A Greenhouse is a technical approach in which farmers in rural areas will be benefitted by automatic monitoring and control of the greenhouse environment. The project focuses on the use of IoT in the greenhouse for environment monitoring and control by implementing low-cost, space, and effort strategies. A system that is efficient in terms of power and water usage while keeping the system architecture and design modest. *Krishi House* is semi-automated making human supervision redundant. With the help of a temperature sensor, soil moisture, pH and humidity sensor, light sensor the system will take inputs from the sensors to the microcontroller and microprocessor of the greenhouse where the algorithm will give desired output in form of irrigation, growth light, and system alert along with sending data wirelessly to the user. Power efficiency is attained by the use of solar energy when acquired; cost and space efficiency is achieved with a meticulous selection of components, materials, and horticulture technique. The goal is to have a competent semi-automated eco-system that supports different types of vegetation which will provide a better yield than the traditional farming method without the hard labor keeping cost and power use at least. The data collected throughout the experiment by the microcontroller and the microprocessor are attained wirelessly in a cloud database and can also be seen by a mobile app at the user's convenience. The goal is to achieve a High-tech greenhouse with automation without the extra cost. The use of IoT and technological advancement will improve the agricultural prospect drastically in Bangladesh which shall be economically accommodating.