



Senior Design Project

Smart Insecticide Spraying Agricultural Robot

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Faculty Advisor:

Dr. K. M. A. Salam

Professor

Department of Electrical and Computer Engineering

Fall, 2020

DECLARATION

This is to certify that this project is our original work. No part of this work has been submitted elsewhere partially or fully for the award of any other degree or diploma. Any material reproduced in this project has been properly acknowledged.

Students' names & Signatures

1. Md Abdul Ahad

2. Md Sadakat Muntaha Eshan

3. Shoumitra Mojumder

APPROVAL

We, **Md Abdul Ahad (1530681643)**, **Md Sadakat Muntaha Eshan (1520446643)** and **Shoumitra Mojumder (1111168043)**, members of EEE/ETE: 499 (Senior Design) from the Electrical and Computer Engineering department of **North South University**; have worked on the project titled “**Smart Insecticide Spraying Agricultural Robot**” under the supervision of Dr. K. M. A. Salam as a partial fulfillment of the requirement for the degree of Bachelors of Science in Electrical and Electronic Engineering and it has been accepted as satisfactory.

Supervisor’s Signature

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Dr. K. M. A. Salam
Professor

Department of Electrical & Computer Engineering
North South University
Dhaka, Bangladesh.

Chairman’s Signature

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Dr. Rezaul Bari
Associate Professor & Chairman

Department of Electrical & Computer Engineering
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Dhaka, Bangladesh.

ACKNOWLEDGEMENT

By mercy of the Almighty we have completed our senior design capstone project entitled “Smart Insecticide Spraying Agricultural Robot”.

Foremost, we would like to express our sincere gratitude to our advisor Dr. K. M. A. Salam for his continuous support in our capstone project progress throughout the whole 499A and 499B, for his patience, motivation, enthusiasm, and immense knowledge. His guidance helped us in all the time of research, writing and completing of this project.

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Last but not the least, we would like to thank our family and friends as their inspiration and guidance kept us focused and motivated.

Abstract

In this project, a unique application of robotics in the field of agriculture has been presented. Bangladesh is a developing country and the importance of agriculture for this country is indisputable. For agricultural work, it is very important for farmers to use insecticide. In a country like Bangladesh, most farmers are not properly trained or equipped for the use of insecticide. Using human labor to handle the spraying of insecticide can lead to many problems, such as health issues and lack of efficiency. A solution to these problems is our smart insecticide spraying agricultural robot. This robot will aid in pest and disease control applications. The robot is able to move, spray insecticide and detect obstacles. The ability of the robot to move and spray insecticide will increase the efficiency of agricultural work, increase crop production and reduce labor cost. The robot is able to move forward, backward, left and right while avoiding obstacles and it can spray the insecticide evenly to cover the plants. There is a special spraying arm mechanism in the robot that enables it to change the direction of insecticide spraying. Our robot is made in such a way that it is possible to control the robot remotely with any Bluetooth enabled smartphone. A smartphone app is used to take inputs from the user and send commands to the robot. The robot does not need any external power due to the use of solar panel. A prototype has been designed using low cost parts such as microprocessors, motors, solar panel, battery and other equipment to help the farmers and effectively increase productivity in the agricultural field.