Department of Electrical and Computer Engineering
North South University

Senior Design Project

Voice Controlled Color Sorting Robot for Picking-Up and Placing Objects

Arka Datta **ID# 1521423043**

Mahmudur Rahman **ID#**1520386043

Kaniz Fatema **ID# 1520064045**

Faculty Advisor:

Dr. Riasat Khan

Assistant Professor

ECE Department

Spring, 2020

LETTER OF TRANSMITAL

May, 2020

To

Dr. Mohammad Rezaul Bari

Chairman,

Department of Electrical and Computer Engineering

North South University, Dhaka

Subject: **Submission of Capstone Project Report on "Voice Controlled Color Sorting Robot for Picking-Up and Placing Objects."**

Dear Sir,

With due respect, we would like to submit our **Capstone Project Report** on **"Voice Controlled Color Sorting Robot for Picking-Up and Placing Objects"** as a part of our BSc program. The report deals with a pick and place robotic system for the assistance of people. This project was very much valuable to us as it helped us gain experience from practical field and apply in real life. We tried to the maximum competence to meet all the dimensions required from this report.

We will be highly obliged if you kindly receive this report and provide your valuable judgment. It would be our immense pleasure if you find this report useful and informative to have an apparent perspective on the issue.

Sincerely Yours,

.....
Arka Datta
ECE Department
North South University, Bangladesh

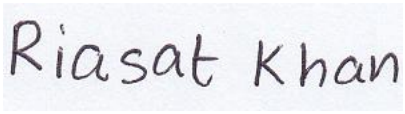
.....
Mohammed Mahmudur Rahman
ECE Department
North South University, Bangladesh

.....
Kaniz Fatema
ECE Department
North South University, Bangladesh

APPROVAL

Arka Datta(ID # 1521423043), Mohammed Mahmudur Rahman(ID #1520386043) and Kaniz Fatema (ID #1520064045) from Electrical and Computer Engineering Department of North South University, have worked on the Senior Design Project titled "Voice Controlled Color Sorting Robot for Picking-Up and Placing Objects" under the supervision of Dr Riasat Khan partial fulfilment of the requirement for the degree of Bachelors of Science in Engineering and has been accepted as satisfactory.

Supervisor's Signature



…….

Dr. Riasat Khan

Assistant Professor

Department of Electrical Engineering & Computer Science

North South University

Dhaka, Bangladesh.

Chairman's Signature

…….

Dr. Mohammad Rezaul Bari

Associate Professor

Department of Electrical Engineering & Computer Science

North South University

Dhaka, Bangladesh.

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. Arka Datta

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2. Mohammed Mahmudur Rahman

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3. Kaniz Fatema

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ACKNOWLEDGEMENTS

By the kindness of the Almighty, we have successfully completed our capstone senior design project entitled "Voice Controlled Color Sorting Robot for Picking-Up and Placing Objects"

Our deep gratitude goes first to my faculty advisor Dr. Riasat Khan, who expertly guided us in our senior design project throughout the whole EEE499A and EEE499B. His guidance helped us in all type of research, writings and completing the project.

Our sincere thanks also goes to North South University, Dhaka, Bangladesh for giving us such a platform where we can have an industrial level experience as a part of our academics.

We would also like to thank my friends Sajid Rahman Joy, Rahul Banik and Naimul Islam Shovon for helping us in this project.

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

ABSTRACT

Voice Controlled Color Sorting Robot for Picking-Up and Placing Objects

Humanity has always attempted to give life to its artefacts as features in an attempt to find substitutes for itself to fulfil its directions and also to function in a hostile setting. A machine that looks like a human arm and works like it is the popular concept of a mechanical arm. The industry is moving from the current state of automation to robotization. Increase productivity and consistent quality production. The industrial robots of today may not look at all like a human being. However, the whole research aims to provide more and more anthropomorphic, and human-like features. Managing certain specific responsibilities, like sending a robotic car to hazardous settings for chemical analysis specimens. A typical robotic car can travel and cross obstacles across distinct terrains. A robotic manipulator or just a mechanical arm is one robot type that is commonly used in the industry. It is an open or closed kinematic chain of stiff links interconnected by mobile joints. In some environments, links can be considered as waste to match human anatomy. Upper arm with joint and forearm of the shoulder and elbow. At the end of the arm, a wrist joint connects an end-effector that can be an tool with which to function, or a gripper or any other device. The primary objective of this project is to create an industry/restaurant pick-and-place robot as an option for human employees. Compared to others, this scheme works correctly. The one portion of our project is the robotic vehicle and the other portion is the robotic arm component. The robotic vehicle is governed by voice, while the other is controlled by a joystick, which is the robotic arm. Thus it makes the pick and place robotic arm perfectly mobile. This project results in our hard work and commitment.