



UNIVERSITI TEKNOLOGI MARA

**AUTONOMOUS FLOOR CLEANER
USING ARDUINO**

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**DIPLOMA IN ELECTRICAL
ENGINEERING (POWER)**

JAN 2024

ACKNOWLEDGEMENT

Firstly, I would like to express my sincere gratitude to all those who contributed to the successful completion of the project Autonomous Floor Cleaner using Arduino.

Besides that, I would like to thankful to my project supervisor Dr Fatimah Khairiah Abd Hamid, who guided me, and who supported me to make this project a success. I also would to thankful to my friends for helping me with this project.

Next, I want to thank University Teknologi MARA(UiTM) Kampus Pasir Gudang for giving me the opportunity to make this project happen.

Finally, I would to most thankful to my parents because of their support, this project success. The reason why I choose this project is because to show my father that I also can be like him which is expert in electricity.

ABSTRACT

Cleaning is an important and necessary task. The main goal of this project is to automate the task so that the person's effort is reduced. There are now floor cleaners that require humans to operate in order to clean. These floor cleaners are costly, and the typical individual cannot afford them. Thus, the goal of this project is to create a prototype of an autonomous floor cleaner that operates without human intervention at a low cost and to evaluate its performance in our environment. This project has already devised an efficient way for cleaning the complex area. The goal of this study is to create an autonomous floor cleaner utilizing an Arduino Mega as a microcontroller. This study's goal is separated into two parts. The first section is the input systems, which is ultrasonic sensor. The second section contains the output systems, which include the Motor driver shield, DC motor, and Gear motor. The ultrasonic sensor, as sensors for this prototype to measure distance and obstacle detection to easily reach the corners of the cleaning space in an effective manner, while the motor driver shield is to control the entire movement of the autonomous floor cleaner. Batteries power the prototype. The autonomous floor cleaner can be used to aid labor in floor cleaning tasks in homes, restaurants, and other locations. It also can use at different types of surfaces

TABLE OF CONTENTS

	Page
AUTHOR'S DECLARATION	2
SUPERVISOR APPROVAL	3
ACKNOWLEDGMENT	4
ABSTRACT	5
TABLE OF CONTENTS	6-7
LIST OF TABLES	8
LIST OF FIGURES	9
LIST OF ABBREVIATIONS	10
CHAPTER 1: INTRODUCTION	11
1.1 INTRODUCTION	11
1.2 PROJECT OVERVIEW	12- 13
1.3 PROBLEM STATEMENT	13
1.4 OBJECTIVES	13
1.5 SCOPE OF WORK	14
1.6 PROJECT CONTRIBUTION	14

CHAPTER 1

INTRODUCTION

1.1 Introduction

Cleaning the environment is one of the important duties for us to stay healthy. Cleaning the floor is a difficult task for humans. Some places will be so dirty, especially our home. Vacuum cleaner can be used for domestic purposes such as cleaning the floor, carpet, room, and anything else. There are several vacuum cleaners on the market, but they are not affordable for the average person.

Besides that, some vacuum cleaners cannot reach some places and corners also require human works. Mostly vacuum cleaners at the market are heavy and people are facing some trouble lifting them when do cleaning works. People struggle to carry the machine that often hard to move in home. Next, most of variety the vacuum cleaner will affect the electricity bill. Based on a few people that experienced the problem mentioned above, their electricity bill increases from tens to hundreds.

So, to solve the above-mentioned problems is designed and develop the autonomous floor cleaner that can reach the places and corners when to cleaning tasks. This prototype using Arduino Mega and Motor driver shield for control it and moving the floor cleaner. It also not requires or need human works which is means autonomous floor cleaner move with automatically because it consists Ultrasonic sensor. This sensor will be functioning to measure distance and obstacle detection. As mentioned above, vacuum cleaners mostly bring some problems to humans such as people having back pain because they are using those vacuum cleaners like it is heavy to lift. The autonomous floor cleaner will help humans to avoid having back pain or any kind of pain. This project is designed with two modes which are sweeping and vacuuming.

Basically, this model is lightly and more save our money because humans don't need to buy sweeper and vacuum cleaner at the same time.