

UNIVERSITI TEKNOLOGI MARA

**DESIGN, ANALYSIS AND
FABRICATION SMART VACUUM
CLEANER**

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ABSTRACT

Smart vacuum cleaner is the product that has been choose for this final year project. Doing some research about vacuum cleaner and learn about how does the vacuum cleaner work. Moreover, the vacuum cleaner has their own problem and always has the same main problem. The problem on vacuum cleaner need to be solved. From the survey and article that have been conducted, the problem can be confirm. The objective can be made to solve the problem by doing design, analysis and fabricate using the good material and part inside of the vacuum cleaner. By using the Solidwork the sketch and the part can be made with true dimension and calculation. Solidwork also will help us on doing analysis the part that hold a lot of forces. By using the analysis we can find the stress, displacement and torque. Then on next part we choose the good part with good price to be inside the project. Then, the vacuum cleaner part need to fabricate to put part in the vacuum cleaner. By the end of the work that have been done, the vacuum cleaner can be produce and will be much functional than before. The objective and significant of this project will be obtained.

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TABLE OF CONTENTS

	Page
CONFIRMATION BY SUPERVISOR	ii
AUTHOR'S DECLARATION	iii
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	ix
LIST OF FIGURES	x
LIST OF ABBREVIATIONS	xiii
CHAPTER ONE : INTRODUCTION	1
1.1 Background of Study	1
1.2 Problem Statement	1
1.3 Objectives	2
1.4 Scope of Work	1
1.5 Significance of Study	1
1.6 Expected results	2
CHAPTER TWO : LITERATURE REVIEW	3
2.1 Information on existing products, patents and standard	3
2.2 Types of vacuum cleaner	4
2.2.1 Canister type of vacuum cleaner	4
2.2.2 Up right type of vacuum cleaner.	5
2.2.3 Stick type of vacuum cleaner	6
2.2.4 Handheld type of vacuum cleaner	6
2.2.5 Robotic type of vacuum cleaner	7
2.3 Product design specification base	8
2.4 Survey about the vacuum cleaner problem.	9

CHAPTER ONE

INTRODUCTION

1.1 Background of Study

As we know, vacuum cleaner has a lot of types and variety of brands. Vacuum cleaner make our work for cleaning our house become easy. An example of cleaning is sweeping using broom. That work need more energy and we believed sometimes our floor is not really clean. So we use vacuum cleaner as a platform to keep our work easy and fast to clean places. The reason why this project is conducted are to make the vacuum cleaner overcome the problem. On this project we will come out that overcome the problem from the previous vacuum cleaner and with affordable price. We also use some electronic things and component such as Arduino Uno and infrared component. Bu using this two things it will make easy to move and avoid obstacle. Many types of vacuum cleaner have their advantages and disadvantages.

1.2 Problem Statement

From the research that had been conducted, vacuum cleaner always have problem. From the article and survey we can see the problem which are the vacuum cleaner is big and heavy, not easy to move on different types of surface and also high flow air filter. However, some people who use the vacuum cleaner always stand up their opinion about trouble that they faced. To make the point of problem is strong we conducted some survey to confirm it. All the problem that been choose have their supporters.

- I. Big and heavy. Based on survey and article most of them will say yes from survey when have 73.6% say yes to this problem. Than some vacuum cleaner try to overcome the problem it fail. Big and heavy will come problem to keep and move it. Take some space at home and take a lot of energy to make it will make some user tired using it.
- II. Difficulties to move on any surface. Based on article and survey also, some user will have this trouble. Because of type and size of tires.