

UNIVERSITI TEKNOLOGI MARA

**DESIGN AND FABRICATION OF
AUTOMATIC RECYCLE BIN**

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ABSTRACT

Many recyclable waste are not thrown into their own categories that will result in making the environment unhealthy. So, the objective is to develop an automatic recyclable bin that will sort out the waste thrown correctly into their own categories without any need of pushing button or pulling a lever. The bin consists of containers for each type of waste and sensors to identify every type of waste thrown into the automatic recycle bin. Then, a separator will separate the waste into their own containers with the help of servo motors. This project will reduce pollutions and can save cost by reducing the need to produce the same item with the same materials. In conclusion, people will learn that recycling are important to create a healthier environment for living things.

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

According to Jabatan Pengurusan Sisa Pepejal Negara, the amount of waste produced every day in Malaysia is 25,000 tons and it is expected to increase by 2% per year. Therefore, 13.5 million tons waste are produced in a year. Thus, the cost to dispose waste in a year is about RM2.2 million [1]. Considering the population growth of Malaysia at 1.3% which is from 31,633.5 in 2016 to 32,049.7 in 2017 [2], the waste and cost for waste disposal, will increase tremendously in the future. Therefore, to reduce the waste being produced, recycling technology should be fully utilized.

Recycling is referred to a process that converts waste material into new materials and objects [3], which can be reduced and reused. In Malaysia, the level of awareness on recycling is still low. Basically, Malaysia already have a recycling system with three separate bins of different colours to collect different material. For example, the yellow bin is for cans, blue bin is for papers and red bin is for plastics. Apparently, people have to think and decide into which bin the waste should be thrown. For people with less awareness on waste recycling, they may just throw the waste without considering the bin's colour or type of waste. This situation is very related to waste sorting behaviour, a study done by Ó. A. Ólafsson [4] where he stated that with given rules and procedures, people are still not assured to follow the instructions in sorting the waste accordingly. Therefore, there is still a need to help users in highly utilizing recycle waste bin by constructing an automated sorting bin.

1.2 Problem Statement

Some people do not bother to recycle because they think that it is hard. Many people do not remember the specific type of waste for each colour of the