

CHAPTER 1

INTRODUCTION

1.1 PROJECT BACKGROUND

The creation of the coin counting and sorting machine is exist for the purpose to help people record down the quantity and total value of coin and divide the coin to corresponding slot automatically. The concept of the coin counter is mostly based on the detection of the dimension, weight, edge of credit pulses by using sensor. The coin sorting tray is designed to sort different type of coins based on the size of coin in different denomination (Richard E. McCarty, Jr., 2001). For the old design of the device, it is just a simple mechanical construction that only has the basic function of counting and sorting the coin and it has many limitations such as the limit of quantity of coins and fails to identify different coins accurately (Joseph J. Geib, Steven S. Kuhlin, 2001). Nowadays, the high technology has shown the improvement to the counting and sorting machine as the modern device becomes more advanced to running the counting and sorting process. Now, the device has the characteristic of simplicity, convenience and high efficiency as the counting and sorting machine can be computerize and it brings speed and accuracy to us. The coin counting and sorting system can be found in various device like vending machine, washing machine, drinking machine, message chair to help the machine handle the work of coin counting and sorting.

1.2 PROBLEM STATEMENT

Many of the coin operated machine in market is incapable to detect between the old and new Malaysia coin with high accuracy and this resulting coin value loose.

1.3 PROJECT OBJECTIVE

- a) Implement a coin operated machine which can differentiate 10, 20 and 50 cent of old and new Malaysia coin accurately and automatically.
- b) Implement the coin counting and sorting system to the machine by using microcontroller ARDUINO as the operating platform.

1.4 PROJECT SCOPE

The microcontroller ARDUINO is used as the processing unit to operate the automatic coin counting and sorting system of the machine. This project including the design of the simple display panel to show total quantity of each coin and total amount of coin value as the LCD has been implemented to display the result. The coin acceptor has been used as it acts as coin selector to determines the denomination of coin and forbid any invalid or unwanted coins. The coin sorting system is designed by using servo motor and the stepper motor to hold and distributes coin to the corresponding slot.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter including the development of the coin operated machine from its early invention until latest modern today. This chapter has also discussed about the concept and theories of the coin operated machine to do the coin counting and sorting process. Analyzing and understanding from the literature review is important because it act as the guidance for the project.

2.2 EARLY INVENTION

In the early invention, the mechanical device of the coin machine is capable to do the counting and wrapping all kinds of coin – gold, silver, nickel, and copper in USA. It consists of a counting-board, a separate counting tube for each denomination and size of coin, and separate brass tubes for attacking and wrapping (Jens H. Molbak, 1888).

The process of operation is simple. A handful of coins of any denomination are placed in a counting-tube of the right size. The tube is then run rapidly over the grooved tracks of the counting-board, where they are deposited. Each track holds only ten coins. When the coins are all placed on the track, the board is slightly tilted, thus throwing the coins into the spaces between the tracks. One end of the board is then raised, and the coins quickly run down the aisles into the stacking-tube to the end of the tray. This tube contains a paper wrapper, which can easily be closed when the tube is opened. Formerly coin counting was a job for an expert, but this machine equals in speed and