

UNIVERSITI TEKNOLOGI MARA

**AUTOMATED SAVING COIN BOX
WITH NOTIFICATION VIA ESP
MODULE**

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ABSTRACT

The significance of saving money nowadays is constantly being ignored by our generation, either youngster or adult which could lead to negative impact such as wasting money on insignificant material and splurging on bad quality of lifestyle. If the problems are not properly dealt with, our younger generation will follow this unhealthy lifestyle and will indirectly foster extravagance lifestyle. With this perspective, this project presents an automated coin saving box with notification via ESP32 module as wi-fi module to display coin value in box via application app. By using Arduino Mega as a controller, there will be two main systems which is system cash in and system cash out. Both systems use the same sensor, which is an infrared sensor. The value of the coins will be detected by their movement in and out of the automated coin box and the value will be recorded by the microcontroller, Arduino Mega 2560. Then, the value will be displayed on the LCD display and sent to the smartphone via ESP32 module. The simulation model was modelled using Proteus software and coding for the controlled was designed. On top of that, the hardware prototype of the coin box was also developed and operates successfully. The results show that the simulation model of the automated coin box system operates successfully and able to display the coin value on the LCD display properly. The hardware prototype also able to display the value on the LCD, and the system also automatically recorded the value via Dabble application in the user's mobile phone devices.

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CHAPTER ONE

INTRODUCTION

1.1 Research Background

Automated saving coin box is a technologically advanced tool for handling and managing currencies in various contexts. To automate currency-related processes and provide efficient coin management solutions, it combines electronic components, sensors, and software algorithms. For example, automated saving coin box are completed with infrared sensor as main sensor and Arduino Mega 2560 as controller for the whole model and more. The basic purpose for automated saving coin box is to improve practice of saving among youngster since the practice of saving among Malaysian is still low [4]. Automated saving coin box is a new developing technology that utilize in helping people in improving financial management and enhance people's quality of life. Automated saving coin box have two main systems which is cash in system and cash out system. These 2 main systems are built in one organization, and they share the same component and sensors. Even though these systems are amazing and have various of components and sensors such as infrared sensors, ESP module and more other things, the appliance only effective in short-distance data transfers which is within the appliance radius. Moreover, the infrared sensor requires line of sight to work well and it must take a specific detection range. Inefficient manual processes such as manual coin counting and sorting can be time consuming and labour intensive, that lead to delays and inefficiencies in daily life. The manual handling of coins also causes increase of errors, such as miscount and inaccurate denomination sorting. This can affect the financial accuracy and reconciliation procedures. Therefore, this study offered an automated saving coin box with notification via ESP module for using Arduino Mega 2560 as microcontroller. Automated saving coin box with notification via ESP module has several advantages, including in accurate coin recognition since appliances utilizes on advances sensor and algorithms to accurately recognize coin value.