



UNIVERSITI TEKNOLOGI MARA

**AUTOLOCK MAILBOX
WITH RFID**

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ABSTRACT

Nowadays, most people are doing business online as follow the modern era which people can buy stuff at fingertips. So, this kind of shopping style show an increasing numbers to the graph of parcel delivery from time to time. Not only that, some important notices such as bills and formal letter also been delivered to the house. House developer right now still using the old mailbox outside the house which does not have any safety features from being unlock by stranger. This project present the Autolock Mailbox prototype that going to enhance the parcel delivery services. This single unit mailbox build to help people to secure their parcels when its arriving home and also tonotify the receiver about their items. The delivered items have all been received by the intended recipients safely. The awareness of these issues will lead to improved process over time, giving people confidence to continue to buy online. This project objectives is to design smart mailbox using WeMos Arduino as a micro-controller and RFID. Next, to design a mailbox's notification method using built-in WeMos Arduino. The method for this project is started with IR sensor as an input that detect presence of mail in the mailbox and notify receiver by Blynk. RFID is use when people want to open the mailbox as the mailbox has lock motor as an output that automatically lock after items delivered.

Keywords: mailbox, IR sensor, RFID, courier, Arduino, WiFi

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1.1 INTRODUCTION

Today, most people prefer to shop online for clothes, bags, and foods. Due to the large number of online platform shops like Shopee and TikTok, it will save time in shopping. . Recently, home automation has become increasingly popular, offering features . As we simplify tasks, we innovate and become more efficient. Problems that frequently happened when it come to mail delivery is when some mails been missing or lost because of some irresponsible people who invaded other people's mailbox. This kind of problems may harden some people because it can be an offer letter for student or important notices for neighbourhood as well. Mailbox that are easily unlock also let other people access our mailbox with so much ease and can take out the parcels inside. Repeated delivery efforts cost couriers time and money, and merchants must

deal with irate consumers or replace stolen goods. Users frequently forget to check their physical mailbox. In addition, busy lives because of their works and commitment prevent users from having the time to do so. Unnotified delivery also make user forgot to check their mailbox and let the itemsthere for a long time. From the problems stated, it promotes advancement and the conduct of research to design a smart mailbox that using Arduino Uno as a microcontroller and sensors that attached onto mailbox. IR sensor install that can recognize the presence of mail or parcel delivered. IoT system also implement on this project to design notification method on mailbox by using Esp8266 and Blynk application. This type of system to assist and remind user to check the mailbox. Lock motor and RFID use in this project as a safety features for this mailbox from being unlock by strangers. This study of Smart Mailbox expected to help a lot of people to secure their belongings and important mails. At the same time, can fairly benefits to the courier company to reduce the complaints and time to resend the mail or parcel.

1.2 BACKGROUND STUDY

This project is to make Autolock Mailbox with RFID by using IR sensor to sense the presence of mail coming. This project mainly use to notify user about incoming mail or letter to their house so they do not miss important notices. Blynk app will show a pop-up notification to user's smartphone when there is a mail inside the mailbox. This mailbox also use RFID module for user to unlock the mailbox which means that no one can unlock the mailbox without the correct RFID string that was bind to the mailbox. LED is used to indicate whether there is a mail or not in the box.