UNIVERSITI TEKNOLOGI MARA
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MEC299

DESIGN AND FABRICATION OF MAIN BOX AND SHUTTER DOOR OF SMART PARCEL DROPBOX(SPD)

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ABSTRACT

Package delivery service brings a lot of inconvenience to the customers especially when it comes to the delivery process. Package delivery should be settled with the presence of the house owner so that they can receive the package safely without any problems. With this smart parcel box, the implementation of automated shutter door and a decent structure of main box will bring more convenience to the customer especially during office hour where they cannot be present to receive the parcel in human. Shutter door will secured the parcel or food from thieves and animal from being stolen and broken. In order to achieve this we need to design and fabricate the suitable design of main box and shutter door to give the best experience to the customer.The main objective of this project is to design and develop CAD modelling prototype of the main body and shutter of the Dropbox and To study on the structure analysis main body of the box using Solidwork2019.This main body of Smart Parcel Dropbox can hold parcel with maximum weight of 280x280x250.The main significance of this study is to made courier service worker and customer and to ensure the safety of the parcel during the usage of Smart Parcel Dropbox.

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

Typically, in Malaysia, we would utilize a reputable courier business or delivery services such as Pos Malaysia, GD Express, DHL, Nationwide Express, and others to complete the delivery procedure. The postman will deliver the parcels directly to the customer's home during the delivery process. The delivery man will place a specific delivery, such as mail or a newsletter, inside the package box. Some packages, particularly large or critical packages, cannot be deposited simply into the parcel box.

These companies essentially guarantee the safety of our packages. But what happens after our parcel is sent is no longer their consideration after we confirm it by clicking the 'order receive' button on the online application. Some of our items may be fragile, food-related, or both. We are concerned about their safety as they have something valuable. The courier service cannot handle our package every time because they also have many other customers' packages to deliver. Therefore, it is our duty to ensure the safety of our package immediately upon delivery. Due to this, many homes in modern times have a package drop box. However, a basic drop box simply served as a short-term container for the package before being picked up by us.

The basic principle is that when a consumer buys something, the product is delivered to the buyer's address. Due to people's hectic lifestyles, the courier sector is having significant difficulties safely delivering products to customers. One of their biggest concerns is what happens if the house is locked when the parcel is delivered. The delivery service may then attempt to deliver the package later, or the consumer may request delivery to a neighbour's address. Alternatively, the consumer may request that the delivery be left with security or in a personal mailbox, or the final distribution facilities may agree to store the parcel for a fee. These treatments are ineffective and must be implemented quickly. As a result, we present Smart Parcel Drop Box as a solution.

1.2Problem Statement

Even if they have a parcel box at their home, consumers in Malaysia are constantly having problems with large package deliveries. Normally, the parcels are delivered directly to the customer's home by the delivery person. Companies that provide courier services have their own policies in place to ensure that packages are delivered safely and that the needs of their customers are met.

Typically, shippers must physically contact the parcel to ensure that it is not lost or damaged if they leave it. The standard drop box has a Covid-19 infection in the shipment. It is critical to avoid contact in order to keep the virus from spreading. So, how can we avoid any physical contact during the receiving process?

1.3OBJECTIVE

The main objectives of this project are;

i. To design and develop CAD modelling prototype of the main body and shutter of the Dropbox
ii. To study on the main box and shutter door component of smart parcel dropbox

1.4SCOPE OF WORK

i. Use SolidWorks 2019 to construct a CAD model of the main body structure, with a maximum weight of 15kg and a parcel size of 280 x 280 x 250 mm.
ii. The Dropbox is intended for usage in an outdoor setting where it will be hot and rainy.
iii. We use aluminium and stainless steel for the main body casing and structure because they are more food-safe.
iv. Because the product is relatively expensive, the target consumer for this project is the M40 group and above.
v. This product will be mounted to the wall.

1.5EXPECTED RESULT