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MEC299

**DESIGN AND FABRICATION OF
AUTOMATIC SPRINKLER OF
SMART PARCEL DROPBOX (SPD)**

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ABSTRACT

Nowadays, in order to ensure the safety of the parcel and also the safety of the human from the corona virus or mostly known as Covid-19, the parcel has to be sanitized when delivering it., making low contact is necessary so that virus spreading can be prevented. Smart parcel dropbox (SPD) is built in order to help sanitizing the parcel and making low contact from the delivery man to the receiver. The objectives of this project are to design and fabricate an automatic sprinkler for smart parcel dropbox. Besides it is also to make sure that the sprinkler sanitization covers most of the area. This project was created of utilizing data from research and development study to design and fabricate the product by using proper material. This project is hope to be able to increase social distance between people to stop the spreading of viruses.

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

The majority of people prefer to shop online, and the deliveryman or carrier travels from location to location delivering the product. Because the buyer/customer isn't available, it becomes impossible to receive the parcel/product, and there are many people who are infected with the coronavirus. These viruses are spreading quickly from one person to the next, through the air, things, and surfaces all around the individual. Based on research conducted, it is possible that the virus to stick on the surface of parcel. That is why sanitization is the most important part. This is a key method of preventing the spread of illnesses.

Most of the houses only have a typical small box in front of their house to store the mail or a small box because that type of item that is usually get delivered. But, with the new disease coming, which result in isolation of almost every country in the world and changing daily life from go out to buy groceries to stay home buying groceries. With the recent changes, the mail box should also change to avoid the disease spreading between each other during this time.

Coronavirus or Covid-19 is not a normal virus that can be underestimate easily, this virus has kill million or billions of people as of nowadays. It is a highly dangerous virus that even the doctor and the nurse who is treating Covid-19 patients have to wear so many layers to avoid infections. Just by looking at their personal protective equipment (PPE) with so many layers

1.2 Problem Statement

With the increase of virus Covid-19, sanitizing is needed to ensure safety of human and stop the spreading. But with so many deliveries to make, human does not have the ability to sanitize every parcel resulting some of the packaging has not been sanitized equally.

1.3 Objectives

The main objectives of this project are:

1. To design and fabricate automatic sprinkler for smart parcel drop box.
2. To make sure that the sprinkler sanitization covers every area of the parcel.

1.4 Scope of Work

The scope of work is divided into two parts, development of the project and component used in the project.

1.4.1 Development of the project

SOLIDWORK 2016 is used to develop the design, which is sketched in approximate dimensions. The prototype for this project is made of aluminium. This is due to the fact that aluminium is lighter than stainless steel. Aside from that, it is less expensive than stainless steel.

Because the parcel is not hanging, the sprinkler will disinfect between 75 and 90 percent of its surface. When the platform rotates, it will begin spraying and will stop spraying at the same time. This can help save sanitary fluid because it operates automatically.