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SUBJECT

MECHANICAL ENGINEERING DESIGN (MEC332)

FINAL YEAR PROJECT REPORT

PREPARED FOR:

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Group/Team	Final Year Project Title
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1.0 INTRODUCTION

To prevent transmission and save lives, masks are a key measure. Masks minimize an infected person's possible risk of exposure, whether the person have symptoms or not. Individuals wearing masks are shielded from being poisoned. When worn by a person who is infected, masks often prevent onward transmission. Therefore, if the user does not dispose of the mask in the correct manner, there really is an issue.

An environmental catastrophe is looming without better disposal practices. The majority of masks are made from long-lasting plastic materials and can stay in the atmosphere for a long period of time if discarded. This means that the masks can affect the world and people in a variety of ways. This project has therefore been established to help properly and safely dispose of the mask.

But it has a dilemma that needs to be conscious of in order to establish a proper disposal of the used mask. It is because different germs can live for different durations on a used mask that can make other people infect themselves with the disease. With the COVID-19 pandemic that is still ravaging the world, the virus has infected millions of people across the globe. The goal of this project is to create a proper mask disposal machine that can dispose of masks to protect against environmental and human impacts.

1.1 OVERVIEW OF THE PROJECT

The project encompassing from the start of the creating an idea of a product that can help society fighting against COVID-19, designing mask cutter, building a mask cutter that help with correct disposal of the mask. The team is consisting of 5 very passionate people that come together to build something great. From the start, some criteria are chosen to fit the goal of the project. Next, it is going to the drawing board. Some impressive design comes out from it but only one of them is chosen. The design that chosen is scrutinized under closer inspection as it will be the design that will carry forward after this and it will be harder is any complication is found down the line after. Thus, the calculation of the product itself has been done to make sure it can achieve its specific goal without compromising its safety and sturdiness. After the design past the checkmark, it come to prototyping. The prototype is built using SolidWork as 3D and stress test it to make sure there is no problem in the calculation and no oversight during it as well. From the start of the project until the end, all of the progress is documented and approved by supervisor.

1.2 DESIGN OBJECTIVE

The aim of this project is to ensure the protection of humans and the environment, to minimize contamination with diseases, and to properly dispose of the face mask. Firstly, the main issue to focus on is the protection of humans and the environment in order to avoid the spread of COVID-19 to other individuals.

As health systems around the world struggle to respond to the COVID-19 pandemic, many significant global environmental health challenges have been brought into sharp focus by the outbreak. It is becoming clear that environmental and climate variables are helping to form the landscape in which COVID-19 is proliferating around the world, affecting the response of public health to the pandemic, and engaging with current inequalities in environmental health. Secondly, the disease is decreased by infection. Finally, the face mask must be disposed of in a correct way. This project has ensured that the mask that will be used must obey the correct Standard Operating Procedure (SOP) that has been instructed by the government.

1.3 SCOPE OF PROJECT

Scope of the project is to build a product that can cut the mask properly and keep the cut mask into a safe bin. The product must be manually operated so the product is not depending on a battery or power outlet. The product must be sturdy so that the bin cannot be exposed to outside environment and away from user as there may a microorganism on the mask that may be harmful to user. The cutter of the product must be sharp as to make sure the mask is properly cut, and it is separated from its mask band. The product also must be durable as it must stand everyday usage from user. The product also must be affordable to the public as it will help to curb the dumping of the mask on the ground. The product also must be able to store the mask that have been cut up to prevent the contamination to surrounding.

1.4 SIGNIFICANCE OF THE PROJECT



Figure 1.3.1: A used face mask that was seen in the sea

From the research conducted, it was concluded that the obsolete nature of the disposing mask does not comply with the specifications of the new disposing mask standard. If the way of disposing of masks is still underway and when the global pandemic envelops the world, it would be a catastrophe for the climate and health that humanity has not seen before. It would be unparalleled in size.

The mask issue is already seen floating like jellyfish in the Mediterranean Sea. Diseases like COVID-19 will spread to the waste collector, litter picker or the public of the discarded mask on property. It would reduce the mask's footprint for others by removing the mask and placing it in a closed position.