UNIVERSITI TEKNOLOGI MARA

DESING AND FABRICATION OF GLASS BOTTLE CUTTER

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ABSTRACT

The potential for commercialization of the glass bottle cutter is high as based on the current trend, the community had begins to create something using waste that are able to be reuse. The glass bottle cutter machine able to provide the community with new products like drinking glass, ashtray and vase. This machine can be place at the recycling service store or craft shop which eventually provide people who cares for saving the earth and have a lot of glass bottle waste. For instance, restaurants and bars. The design of the glass bottle cutter varies from others as it is heavy duty and long-lasting. As compared to the existed glass bottle cutter, it is done manually which the user required to score the glass bottle with wheel cutter and immerse the glass bottle in hot and cold water for 1 minute respectively. This shows that it is such a long process and the existed product itself does not last longer for cutting a huge number of glass bottle.

The fabrication process includes measuring, cutting, welding and drilling. This glass bottle cutter is made from metals, operated by DC motor as for the cutting purpose and rotation of the wheel and diamond blade as the cutting tool. The cutting tool that used is diamond blade instead of wheel cutter which helps to decrease the requirement of human forces. Test results show the glass bottle able to be cut in less than 1 minutes. The glass bottle cutter also takes shorter time taken to cut, provide less human forces and have a fine cutting edge finishing. To conclude, the fabrication of a glass bottle cutter machine based on the design and analysis of the prototype is a success. Some recommendations can be add as an initiative to improve this glass bottle cutter machine such as add safety button, apply coolant as to prevent the glass dust from shattering all over the place and provide the function of polishing the cutting edge.

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INTRODUCTION

1.1 Background of Study

Glass bottle is a waste that have the least attention compared to plastic waste. The glass bottle use is not much declining due to rising consumers, high consumption and introduction of a variety of soy sauce, juices and soft drinks. Malaysia is one of the country that have glass recycling at a minimum due to lack of segregation, awareness and economic reasons. The truth that management of glass bottles waste is a crucial challenge as it takes millions of years to degrade glass naturally.

Next, glass bottle cutter that works automatically is impossible to be found sell at the store neither the recycling service store. Hence, people choose to just throw away their glass bottle waste along with the domestic waste. The fact that glass bottle waste could give harm to the garbage collector which end up to other issue. The objectives of this study is to produce a glass bottle cutter that works automatically in order to turn the glass bottle into other products such as drinking glass, lamp, ashtray and more, in order to slowly but surely reduce the environmental effect to the mother nature and the risks of people injured due to improper dispose of glass bottle waste.

Therefore, this product aims to everyone as every household, restaurant and dispose centre that have glass bottle waste. Thus, recycling store and restaurants that have a large amount of glass bottle waste are essentials to have this product. So that, the community able to use it. This product gives satisfaction as it is convenient to use, safe and help to reuse the glass bottle waste in more interesting way.