UNIVERSITI TEKNOLOGI MARA

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CAWANGAN TERENGGANU KAMPUS BUKIT BESI

MEC299

FABRICATION OF MECHANICAL CAN CRUSHER BY USING IOT SYSTEM

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ABSTRACT

The can crusher machine is utilized to flatten aluminium cans for convenient storage in recycling bins. It is widespread use is apparent in various establishments, such as hotels and restaurants where significant storage space is required. By crushing the cans singly or in multiple, the can crusher provides extra space. It simplifies the disposal or recycling of waste materials by reducing their size. The objective of this project is to raise environmental awareness among students at UiTM Bukit Besi by minimizing the usage of aluminium cans and eliminating environmental pollution and exposing the UiTM Bukit Besi students to the use of IoT-systemized can crusher to safeguard the environment. Additionally, the can-crushing machine helps to reduce the number of used aluminium cans in the environment. The project involves the design, fabrication, and assembly of the can crusher, with consideration for the necessary crushing forces and ergonomic facts. In addition, the method for this project is about experimental method, which to improvise the can crusher by applying the Internet of Thinking (IoT) system.

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CHAPTER 1

INTRODUCTION

1.0 Introduction

1.1 Background of Study

This final year project (FYP) consists of the designing and fabrication of a mechanical can crusher by using the Internet of Things (IoT) system. A can crusher is a device, or a machine made primarily to compress aluminum or steel cans for easier recycling, storage, and transportation. A can crusher is commonly used in households, businesses, and recycling centres to reduce the number of empty beverage cans and make them more manageable.

Can crusher typically have a handle or lever for manual operation as an example shown in Figure 1. Depending on the design, the crushing mechanism may be different, but it typically comprises a plate or surface applying pressure to the can to flatten the aluminum cans.

Figure 1: Manual Can Crusher

Apart from the manual can crushers, there are also can crusher that uses IoT system as shown in Figure 2. A can crusher using an Internet of Things (IoT) system refers to a Can crushing devices that can crushing device that incorporates IoT technology for enhanced functionality, connectivity, and automation. The IoT system enables the can crusher to gather and transmit data, interact with other devices or systems, and provide remote monitoring and control capabilities. There are some systems that work with IoT systems such as smart sensors, connectivity, automation, and optimization.

A can crusher with an IoT system improves functionality and connectivity by utilising sensors, data transmission, remote monitoring, and automation. It gives users real-time information, control, and optimisation, ultimately boosting the efficiency and efficacy of the can-crushing recycling process.

Figure 2: A can crusher using IoT system.

Overall, a can crusher is a useful tool that makes it easier for individuals and businesses to participate in sustainable waste management practices by simplifying the recycling of aluminum or steel cans.

This project needs skills and knowledge of 3D Computer-Aided Design Software (CAD) which is SolidWorks. SolidWorks is a popular computer-aided design (CAD) software developed by Dassault System. It is commonly used in a variety of sectors to develop and model three-dimensional (3D) objects and assemblies.

Engineers, designers, and architects can use SolidWorks to produce detailed 3D models with precision and efficiency. It offers a user-friendly interface, extensive design tools, and integration with other engineering software and systems, making it a versatile and powerful Computer Aided Design Software (CAD) solution. In conclusion, using SolidWorks is the best choice to design the can crusher.