UNIVERSITI TEKNOLOGI MARA

DESIGN, ANALYSIS ANDD FABRICATION OF AUTOMATIC CAT LITTER BOX

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ABSTRACT

This project is automatic litter box is a self-cleaning machine that requires little assistance from humans to manage a cat's excrement. When a cat uses these litter boxes, sensors, timers, or other systems detect it. The waste is then mechanically raked into a different area or container. This helps maintain a clean litter box environment and reduces the frequency with which owners need to manually scoop the litter. This innovation was created to address issues that a cat owner encountered when cleaning the litter box, such as having little time to complete the cleaning routine, maintaining the owner and cat's hygiene, and needing less effort on the part of the owner to clean the litter box. The objective of this project is to design and fabricate an automatic cat litter box that can that can easily to setup and user friendly. The machine will operate by detect the presence of cat that enter the machine and start the timer to make the countdown. When the countdown reaches zero, it will trigger the cleaning system inside the cat litter box to operate the cleaning cycle. The machine will be design using Solidwork and using Arduino UNO as the electrical component and for programming. The expected result is a cat litter box which is fully function automatically.

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INTRODUCTION

1.1 Background of Study

As a cat owner, people assume the noble role of caretaker, companion, and guardian of your feline friend. With this privilege comes a set of responsibilities aimed at ensuring the well-being, happiness, and safety of your beloved pet. Some of the responsibility will be providing proper nutrition, maintaining health and veterinary care, grooming, ensuring shelter, and one of the most important is hygiene.

A proper management of cat waste is one of the keys to keep the hygiene of the cat and the owner. However, cleaning the cat litter box can sometimes present challenges to the owner. Sometime the owner has a busy schedule, that cause them sometime forgot to clean the cat litter box. Besides that, some of the owners are allergic with the dust from the cat litter which can harm the owner. Lastly, it is time consuming to clean the cat litter box every day.

To overcome the problem, most of the cat owner will spend their money to get a mask and glove that can be used as a protection layer but they still have possible to get expose to the dust due long period of time to clean the litter box. There also has a product that automatically clean the litter box but it’s expensive to most people[1].

A thorough investigation into the improvement of a new cat litter box design was carried out in order to identify certain limits that had been identified during the few exhibitions that were attended. The goal of this study was to develop answers and countermeasures for these issues.

The project's goal is to improve the automatic cat litter box's current design. SolidWorks 2019 will be utilized to render and model the selected concept during the design phase, which will follow a normal engineering design approach. By the end of Final Year Project 2, a proof-of-concept prototype will be built. By creating a product design that maximizes both the device's self-cleaning capabilities and cost efficiency.