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2023

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**JOHOR
INNOVATION
INVENTION
COMPETITION
AND
SYMPOSIUM
2023**



" Innovation Inspires a Society
to be Critical and Creative"

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Editors-in-Chief

**AHMAD KHUDZAIRI KHALID
NUR INTAN SYAFINAZ AHMAD**



الجامعة التكنولوجية
UNIVERSITI
TEKNOLOGI
MARA

**Cawangan Johor
Kampus Pasir Gudang**

2023



First Edition 2023

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e ISBN: 978-967-0033-17-4

Editors-in-Chief: AHMAD KHUDZAIRI KHALID & NUR INTAN SYAFINAZ AHMAD

Art & Cover Designer: DR. WAN MUNIRAH WAN MOHAMAD & DR. NUR IDAYU ALIMON

**Published in Malaysia by
Universiti Teknologi MARA Cawangan Johor
Kampus Pasir Gudang
81750 Masai**





Preface

In the name of Allah, the Almighty who gives us the enlightenment, the truth, the knowledge and with regards to Prophet Muhammad (peace be upon him) for guiding us to the straight path. We thank to Allah for giving us guidance and strength to write this e-book.

This e-book compiles the extended abstracts that submitted to Johor Innovation Invention Competition and Symposium 2023 (JIICaS2023), where JIICaS2023 is a virtual platform for all creative minds to share and present their invention and innovation. The extended abstracts are divided into two categories, which are Category A (Higher Educational Student/ Any Recognized Institutional Students in Malaysia) and Category B (Primary/ Secondary School Students / Special Education School Students in Johor). Each abstract gives a brief background on the innovation or project.

We hope that this e-book will help the readers to get to know the innovation done by the students from both categories and get some ideas to develop future innovation products.



SMART CAT FEEDER

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ABSTRACT

Stray cats are often referred to as "community cats" normally can be found on the street. People enjoy providing food and water to stray cats, but they frequently leave it on the floor or on the road street. Hence, the food may be contaminated with bacteria, exposing them to various infections and health issues, such as food poisoning. The objective of this project is to develop a smart device that are equipped with various features that allow users to schedule and monitor the cat's feeding times and portion size. This smart feeder cat has two main parts, which are food storage & drinking water storage. The food storage section employs the mechanical engineering idea of dynamic rotation. The food is then automatically set out within the predetermined timer using an actuator. Timer, with help of sensor and solar are innovated to this project to help user determine an appropriate feeding plan for the cats. Thus, food will always keep fresh and clean. Result and testing show that this smart feeder is functioned well. As solar power is a pollution-free and renewable energy source, make this product is an eco-friendly solution and more sustainable choice. As conclusion, this product is practical to be used, and it is expected to make sure that the health of the stray cats in safe hands and reduced the exposure to infections.

Keywords: smart cat feeder, automatic cat feeder, stray cats

1.0 INTRODUCTION

People enjoy providing food and water to cats, but they frequently leave it on the floor or on the road. Food and water become unsafe for cats to eat because of bug or contaminated environments. Cats are exposed to numerous infections because of abandoned food in this situation. Another issue found is cat's owner are busy with their work and not at home all the time. Thus, an automatic cat feeder is a terrific solution for people who spend a lot more time away from home. This smart feeder can help owner to feed their cats, helps them give vitamin or medicine by putting it in plain water (soluble) and can manage the quantity of food and drink a day. This product has 2 parts which is the inner and outer part. The inner part is divided into 3 parts which are food, drink, and an electrical or mechanical part. The food part that is categorized as the inner part uses the concept of rotation in dynamic. The drink part consists of a water bowl (stainless steel) and injector (straw rode). The rotation is made from impraboard. The drink part is looking like a water fountain for cats while the food part use rotation that can rotate the food within the setup timer. Electrical components such as a motor and timer are used to set the food dispersed out automatically. The material used to make this product is ACP, stainless steel, plastic. The total size is 600mm x 800mm x 200mm.

2.0 OBJECTIVE

The main objective of this project is to develop a smart device that are equipped with various features that allow users to schedule and monitor the cat's feeding times and portion size. Second objective is to analyse how an automatic cat feeder functions in the daytime with solar and sensor. Third objective is to fabricate automatic cat feeder wall and door using aluminium and acrylic board.

3.0 DESCRIPTION OF INNOVATION/METHODOLOGY

This automatic cat feeder has 2 parts. The interior and outside sections of this product are separate. Food, drink, and an electrical or mechanical component are divided into three sections in the inner half. The food section, which is classified as the inner part, employs the mechanical engineering idea of dynamic rotation. The food is then automatically set out within the predetermined timer using an actuator such as an electrical component such as a motor and sensor. Sensors offer improved sensitivity during data collection, lossless transmission, and continuous, real-time analysis.



Figure 1: Final product of Smart Cat Feeder

4.0 ADVANTAGE/IMPACT/RESULTS/NOVELTY

As solar power is a pollution-free and renewable energy source, make this product is an eco-friendly solution and more sustainable choice. Besides, the advantage of this product is it can save time. The use of timer can set how many times the cat's owner wants to give their cats eat.

5.0 CONCLUSION

Overall, it can be concluded that the objectives have been achieved. An automatic cat feeder can solve the problem faced by busy owner who does not have a lot of time to feed their cats. This project can also be one solution to save their time and helps them to arrange time and quantity of foods and drink when to feed in a day. Therefore, this product can benefit the consumer to arrange their time to feed their cats, allow cats to stay hydrated and health and avoid the owner and cats stress.