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**JOHOR
INNOVATION
INVENTION
COMPETITION
AND
SYMPOSIUM
2023**



" Innovation Inspires a Society
to be Critical and Creative"

JOHOR INNOVATION INVENTION COMPETITION AND SYMPOSIUM 2023



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**AHMAD KHUDZAIRI KHALID
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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.



DESIGN AND FABRICATION OF AUTOMATIC FLOUR FILTER AND SEPARATOR

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ABSTRACT

The process of filtering flour to finish often leads to energy and time consuming, especially for large scale business. The flour filters sieve traditionally used are made of wood, plastic, and metal, which are susceptible to corrosion and contamination over time. The traditional flour filter sieve used in household is however small, and thus can strain up to certain amount of flour. The flour filter machine available in the market howbeit, is technically bulky, non-portable, and expensive. The aim of this project is to design and fabricate a medium-sized, portable, and affordable flour filter machine that can sift the flour for home appliances as well as small scale business purposes. The proposed automatic flour filter and separator machine is equipped with an AC motor that powers the conveyor which is responsible to move the filter repeatedly in linear direction. The sifted flour will go into a funnel equipped on the lower part of the filter. This machine is useful for the home appliances, small and even large-scale business that uses flour as a main ingredient. The machine is portable, considerable lightweight, and is designed to reduce the energy and the time consumed in filtering the flour.

Keywords: automatic flour filter, flour separator

1.0 INTRODUCTION

In baking, flour is often sifted through a fine mesh or flour sifter to remove lumps and aerate it. The available flour filter machine in the market howbeit, is found to be too colossal, non-portable, and pricey for household uses and small-scale business. This leads to the use of the small traditional filter sieve, which is energy consuming and limited to only small amount of flour that can be filtered out at a time.

2.0 OBJECTIVE

It is thus the aim of this study to design and fabricate a. automatic flour filter machine that offers an affordable price for household use, portable, whilst reduce the time and energy used in filtering the flour.

3.0 DESCRIPTION OF INNOVATION/METHODOLOGY

This project was selected to assist small and medium-sized industries after a thorough research and background studies from the problem statement arise. A design was developed by using SolidWorks which is illustrated in Figure 1. Suitable materials and mechanical components were assembled, and the design idea was fabricated. Finally, a product testing was performed to determine the durability of the material of the final product which is illustrated in Figure 2.

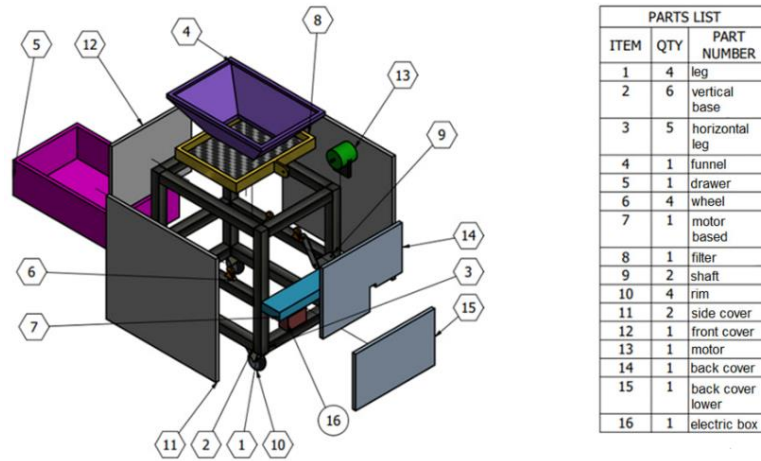


Figure 1: Design of the proposed Flour Filter and Separator using SolidWorks.

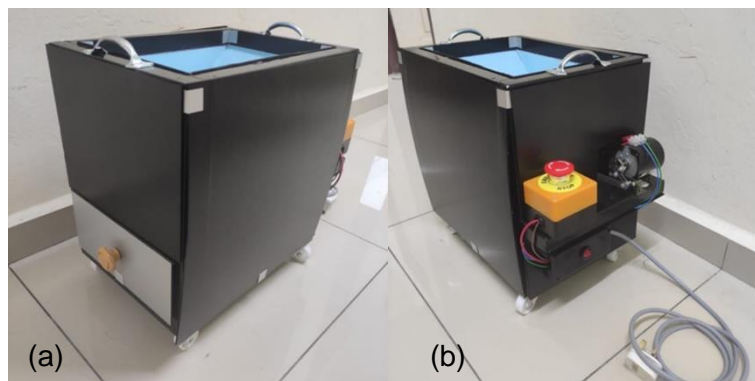


Figure 2: (a) Front view of the final product and (b) Rear view of the final product.

4.0 ADVANTAGE/IMPACT/RESULTS/NOVELTY

The proposed automatic flour filter machine will be able to help not only household, but small and medium-sized industrial confectionery makers to further increase their productivity while being able to provide satisfaction to their customers. By using this machine, it can save time and reduce the workload as the machine is designed to work automatically with the aid of AC motor which moves the filter sieves linearly and repeatedly. An emergency stop switch is also equipped with the machine, to stop the machinery quickly when there is a risk of injury, or the workflow requires stopping. To date, no machine has been designed and available in the market to help in reducing the workloads and time consuming in filtering flour.

5.0 CONCLUSION

Overall, from the evaluation and product test carried out on this flour filter and separator machine, the objective of this project has been achieved which is to produce a flour filter with a suitable design for small business owners or housewives. This has helped consumers, especially businessmen and housewives, to produce a variety of confectionery for them to do business and or even use at home.