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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**



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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.



NON-DESTRUCTIVE METHOD TO ESTIMATE THE VOLUME OF FRUITS

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ABSTRACT

Finding the volume of fruits is important for both consumers and sellers. The objective of this innovation idea is to provide a creative non-destructive method to measure the volume of fruit with ellipsoid shape and irregular shape. The steps to derive the volume of fruits are illustrated with examples. There are many advantages and benefits for seller when the volume of fruits is obtained. The volume of fruits plays a crucial role in storage and transportation logistics. By knowing the volume, one can optimize the packaging, stacking, and transportation methods. This helps in minimizing wastage, reducing damage, and utilizing storage and transportation space efficiently. It also aids in determining the required storage capacity and ensuring that the fruits are stored and transported in optimal conditions. As a conclusion, finding the volume of fruits provides valuable information for various stakeholders, including farmers, sellers and consumers. It helps in assessing quality, optimizing storage and transportation.

Keywords: Fruit, volume

1.0 INTRODUCTION

The volume of a fruit provides insights into its overall quality. Larger fruits may be preferred by consumers as they are often associated with juiciness, ripeness, and better taste. By determining the volume, fruit producers and sellers can assess the quality and value of their products, helping them make informed decisions about harvesting, packaging, and pricing. However, there are many fruits with irregular shape and hence it would be difficult to calculate or estimate the volume of fruits. The innovation idea that we are going to introduce is a non-destructive method to estimate the volume of fruits. Therefore, the non-destructive method is a technique that enables the estimation of the volume of fruits without causing any form of damaging, destruction, or altering the structure of the fruits.

2.0 OBJECTIVE

To provide a creative non-destructive method to measure the volume of fruit.

3.0 METHODOLOGY

The non-destructive method to measure the volume of fruit with ellipsoid shape is through integration.

4.0 ADVANTAGE

When the volume of fruits is obtained, there are many advantages and benefits for seller. By knowing the volume, one can optimize the packaging, stacking, and transportation methods. This helps in minimizing wastage, reducing damage, and utilizing storage and transportation space efficiently. It also aids in determining the required storage capacity and ensuring that the fruits are stored and transported in optimal conditions.

5.0 CONCLUSION

This innovation idea presents a non-destructive method to measure the volume of fruit. By knowing the volume of fruits provides valuable information for various stakeholders, including farmers, sellers and consumers. It helps in assessing quality, optimizing storage and transportation. Hence, this innovation idea plays a crucial role in storage and transportation logistics for fruit industry.