# UNIVERSITI TEKNOLOGI MARA

## AUTOMATIC BUFFET TRAY COVER

### AMIR SHUKRI BIN MOHD NASIR

Dissertation submitted in partial fulfillment of the requirements for the degree of **Diploma** (Mechanical Engineering)

**College of Engineering** 

Jul 2023

#### ABSTRACT

Buffet trays are widely used in restaurants today, but there are several drawbacks that must be considered. Using the buffet cover correctly, flies fall in dishes and contaminate food and having bad habits of not putting things back are just a few of the drawbacks. By implementing an automatic mechanism, the buffet tray Buffet trays are widely used in restaurants today, but there are several drawbacks that must be considered. Using the buffet cover correctly, having flies fall in dishes and contaminate food, and having bad habits of not putting things back are just a few of the drawbacks. By implementing an automatic mechanism, the buffet lid will automatically close when the ladle of side dishes is placed in its position, so resolving the issue. Both the restaurant owner and the customer can gain from this since the restaurant owner can ensure that the food is prepared in hygienic condition and the customer can avoid contracting food poisoning, especially if it affects youngsters or the elderly. This project will use the method of designing in SOLIDWORKS software and by using this software simulation, it could tell if the design is successful or not successful.

#### ACKNOWLEDGEMENT

Firstly, I wish to thank God for giving me the opportunity to embark on my diploma and for completing this long and challenging journey successfully. I would like to express my sincere gratitude to the following individuals and organizations for their invaluable support and contributions to this research.

I would like to thank my supervisor, Ts.Dr. Hasannuddin Bin Abd Kadir, for all their help and assistance during the study process. Their knowledge and perceptions were extremely helpful in forming this research.

Thank you to my family and friends for your unwavering support, tolerance, and understanding throughout the long hours and sacrifices involved with this endeavour. Especially my mother that encouraged me to do this Final Years Project as soon as possible.

Finally, this dissertation is dedicated to my father and mother for the vision and determination to see me holding a scroll of a diploma. This piece of victory is dedicated to both of you. Alhamdulilah.

## **TABLE OF CONTENTS**

CONFIRMATION BY SUPERVISOR	ii
AUTHOR'S DECLARATION	iii
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	XX
LIST OF FIGURES	XX
LIST OF ABBREVIATIONS	XX

### **CHAPTER ONE: INTRODUCTION**

1.1	Background of Study	11
1.2	Problem Statement	12
1.3	Objectives	12
1.4	Scope of Study	12
1.5	Significance of Study	13

#### **CHAPTER TWO: LITERATURE REVIEW**

2.1	Benchmarking/Comparison with Available Products	14
2.2	Review of Related Manufacturing Process	16
2.3	Patent and Intellectual Properties	17
2.4	Summary of Literature	21

### **CHAPTER THREE: METHODOLOGY**

3.1	Overall Process Flow	22
3.2	Detail Drawing	24
3.3	Engineering Calculation and Analysis	30
3.4	Bill of Materials and Costing	32
3.5	Fabrication Process	35

## CHAPTER ONE INTRODUCTION

#### 1.1 Background of Study

...The buffet tray is Very important especially at the restaurant that do a buffet, the concept of eating a buffet arose in mid-17th century France, when gentleman callers would arrive at the homes of ladies they wanted to woo unexpectedly. Their surprise arrival throws the kitchen staff into a panic and the only food that could be served was a selection of what was found in the cold room. In Malaysia, the buffet tray often used by most restaurant serve as many kinds of food such as kari masak lemak, gulai and others, this is because Malaysia's population is increased, and people have different appetites and taste.

Due to many restaurants that do not manage food waste properly, this causes flies to be attracted to the Store and land on the exposed food on the buffet tray. As is Well known flies have various disadvantages such as anthrax, conjunctivitis, typhoid fever and so on. In addition, some types of flies can also spread malaria and yellow fever. For that reason, preferably, do not eat food that has been infested with flies.

The buffet tray cover has been prepared to stop any debris from entering the buffet tray, but this precaution is ineffective because some groups aren't using this facility to its full potential, for example, they do not close the buffet tray again after taking dishes, which leads to the dishes becoming contaminated by flies and resulting in food poisoning. With the combination of this automatic technology and the buffet cover, the development of technology is accelerating in the present. This combo may successfully handle the issue.