UNIVERSITI TEKNOLOGI MARA

DESIGN AND DEVELOPMENT OF SLING BASED TENNIS BALL LAUNCHER

MUHAMMAD AZFAR RAMDAN BIN LAHMUDDIN

Diploma

March 2022

ACKNOWLEDGEMENT

I would like to express my deepest gratitude to my supervisor, Sir Abdul Rahim Bahari for his patient guidance, advises, FYP progress meeting, encouragement, and his positive thinking about my FYP project. I would also want to thank my parents because of their support and help towards me. And lastly I wish to thank my friends for their advice, their views, their help to make my project success and became better. They give me ideas when I become deadlocked.

ABSTRACT

The research must conclude the terms such as design, how the projectile motion work, the formula etc. 3 designs sketched based on the title given by supervisor which is projectile motion. The final sketch designed in 3D shape by using a software called solidworks. Material used in fabrication process listed because it can help to estimate the cost or budget needed. This project implemented to obtain objectives which is to show the concept of projectile motion based on our own product and to design and fabricate a projectile launcher using the concept of sling and using tennis ball. The tennis ball launcher launched forward to find the displacements of the ball when it reached the ground. When the data recorded, formula used to find the initial and final velocity.

TABLE OF CONTENTS

| | | Page |
|--------------------------|-----------------------------|----------|
| CON | NFIRMATION BY SUPERVISOR | ii |
| AUT | THOR'S DECLARATION | iii |
| ABSTRACT ACKNOWLEDGEMENT | | iv |
| | | v |
| TAE | BLE OF CONTENTS | vi |
| LIST OF TABLES | | viii |
| LIST OF FIGURES | | ix |
| CIL | APTER ONE INTRODUCTION | 1 |
| 1.1 | Background of Study | 1 |
| 1.1 | Problem Statement | 1 |
| 1.3 | Objectives | 1 |
| 1.4 | Scope of Work | 1 |
| 1.5 | Significance of Study | 1 |
| СНА | APTER TWO LITERATURE REVIEW | 2 |
| 2.1 | Introduction | 2 |
| 2.2 | Background of the Sling | 2 |
| | 2.2.1 Project review | 2 |
| 2.3 | The Use Of Sling | 4 |
| 2.4 | Slingshot Applications | 6 |
| 2.5 | How To Make A Simple Sling | 9 |
| 2.6 | Best Slingshot For Hunting | 11 |
| 2.7 | Material STRUCTURE | 13 |
| 2.8 | Formula | 13 |
| CHA | APTER THREE METHODOLOGY | 15 |
| 3.1 | Flowchart | 15 |
| 3.2 | Fabrication Process | 23 |

| CHAPTER FOUR RESULT AND DISCUSSION | | 30 |
|------------------------------------|--|----|
| 4.1 | Introduction | 30 |
| 4.2 | Data Analysis | 30 |
| | 4.2.1 Experimental Data | 30 |
| | 4.2.2 Theoretical Data | 32 |
| | | |
| СНА | APTER FIVE CONCLUSIONS AND RECOMMENDATIONS | 34 |
| 5.1 | Conclusions | 34 |
| 5.2 | Recommendations | 34 |
| | | |
| REFERENCES | | 35 |
| | | |
| СНА | APTER SIX APPENDICES | 37 |
| 6.1 | APPENDICES A | 37 |