

UNIVERSITI TEKNOLOGI MARA

**DESIGN, ANALYSIS,
FABRICATION OF AN
AUTOMATIC LAPTOP STAND**

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ABSTRACT

Working from home, the office, or on the go necessitates the use of a laptop. However, while laptops provide flexibility in terms of working location, their design does not make them an ergonomic choice for lengthy periods of time [4]. A laptop stand can assist in fixing laptop ergonomic issues. It is one of the most affordable and straightforward ways to safeguard your health and improve your quality of life [4]. Based on the survey that has been conducted, a few problems of current laptop stand faced by consumers are risk of injuries, space-consuming and lack of flexibility. The objectives of this project are to design and fabricate an automatic laptop stand with adjustable height and to design and fabricate an ergonomic laptop stand that is portable. The project method will cover basic electrical systems and strength of the material, designing and analysis will be done using application called Solidwork, and the fabrication process will involve welding, folding, cutting, soldering. The significant of this product are the capability of setting the heights of the laptop based on consumer's preferences, powered by motor and alkaline batteries, and the design is minimalist yet able to provide comfort to user.

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

Laptop stands have played an important role in our lives, particularly for persons who work from home, where their major aim is to provide superior ergonomics for human comfort[1]. Some designs do not give appropriate ergonomics when employed due to a lack of adjustability. According to the data obtained, 8/10 persons had back discomfort as a result of the design, which is not suitable for everyone's height. Aside from that, users have complained about neck ache and the fact that it takes up a lot of room. The goal of this invention is to allow individuals the ability to adjust the height of the laptop stand to their liking, making it easier to use and posing a minimal risk of injury. This product will be made of aluminium and will be powered by a DC motor, a double-pull and double-throw (DPDT) switch, and batteries. Welding, cutting, soldering, and folding will all be included in the fabrication process. With the creation of this product, it is hoped that it would be able to decrease the risk of accidents and be adaptable.

1.2 Problem Statement

Laptop stand have played a huge role in life where its primary function is to improve ergonomics. There is a lot of body height where some have a long upper body, shorter upper body, longer neck, short neck, etc. Therefore, achieving the objective of the product is a bit difficult.

Based on the survey in a form of Google Form that has been done, a lot of participants have mentioned of some flaws about the current laptop stand that they are using, and the flaws is as follows.