

UNIVERSITI TEKNOLOGI MARA

**DEVELOPMENT OF A PROTOTYPE
ERGONOMIC HEIGHT
ADJUSTABLE DESK**

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ABSTRACT

Spending time sitting in front of desk to do work is common among the people in Malaysia from as early as 5 years old. But spending a lot of time on workspace can lead to a passive lifestyle which will bring many negative things into daily life. A simple action like standing up and stretching after hours of non-active activity such as sitting can help body to feel much better. So, a standing desk is one of the options that is available. The objective of this project is to design an ergonomic height adjustable desk and to fabricate an ergonomic height adjustable desk. Other than the impressive height adjuster the desk also needs to be sturdy and that is where the use of mild steel frame comes in handy to provide a sturdy and confident frame. SOLIDWORKS 2019 is used to design the product to meet all the criteria needed to achieve the objectives of the project. The final product will provide the user of the desk a good ergonomic position for a better sitting or standing position to do work for hours in front of computer and reduce muscle fatigue and pain. In conclusion, this product will benefit a lot of people if being fabricated properly.

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

When corona virus (COVID19) case increase in March of 2020, many people started to work from home and students from all levels of education started to study from home through an Open and Distance Learning (ODL) [1]. Since people must sit in front of their computer for hours, this action can lead back pain and muscle fatigue in long term run. So, the proposed project which is the Ergonomic Height Adjustable Desk is one of the ways to help people that is working or learning from home to prevent back pain from sitting too long. Even if there is no pandemic, most people would still spend a lot of time in front of their computer doing work. The user of this product can have variable position while doing their jobs on this ergonomic desk and there are two main positions for this table. The first position is sitting and the second one is standing. This product can be used by anyone from primary school students to office workers. This proposed project will be cheaper than the height adjustable table in the market due to the manual mechanism instead of automatic which is the common mechanism used in the market.

1.2 Problem Statement

Human body are not designed to be in a static position for a long period of time no matter the age of the person. In this modern era, most people will sit in front of their personal computer (PC) for hours every day doing work, study or even playing video games to release stress. There are many negative sides effect for sitting too long at a time [2]. Firstly, when a person is sitting to do work or study, the body posture of that person will start to be in a more relax position. That person body will start to be caving in and because of that the muscles on neck, shoulders, and back start to strain. In a long run, the strain will increase the risk of injury in that part of the body [3]. As mentioned before, neck, shoulders, back and lower back. Next, sitting for a prolonged period can