

UNIVERSITI TEKNOLOGI MARA

**DESIGNING AND FABRICATING A
PORTABLE DRILL PRESS
MACHINE**

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ABSTRACT

This project is about designing and fabricating a portable drill press machine. The existing drill press machines are very big, heavy, expensive, and not portable. Many people cannot afford a drilling machine that has table support. People need to use the drill press machine so that the workpiece is more stable to handle. It is very hard to control our hands in order to drill in a straight line. The portable drill press machine is suitable for drilling a small workpiece. It is portable just like the hand drilling machine. The portable drill press machine is small, and lightweight compared to the existing drill press machine. The drill can travel in the y-axis upward and downward direction by adjusting it manually. The portable drill press machine is made by using a DC motor and the drill chuck. The motor is used to drive the spindle. This machine can be very useful and affordable to those who want to do a small project and have a budget drill press machine. In this project, cutting, drilling, and welding is needed to fabricate the portable drill press machine.

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CHAPTER ONE

INTRODUCTION

1.1 Background of Study

A drilling machine is made in many different shapes, designs, and sizes. For example, the small hand-held power drills, bench mounted and floor mounted drilling machine. The drill press machine is also known as bench drill because of the design of the drill which is mounted on a stand or bolted to the workbench or floor. It is very popular among the woodworkers who need a lot of power and accuracy in drilling holes. The drill press machine is used to cut holes through the wood, metal, and other materials. The drilling machine can be used to do operations such as drilling, boring, tapping and reaming.

However, the cost of the drill press machine is quite expensive. Not many people can afford a drill press machine. The drill press machine works better compared to the hand-held drilling machine. This is because the hand-held drilling machine needs a high force and energy to apply to the drilling tool. The angle is not fixed when drilling with a hand-held drilling tool. It is not suitable especially for beginners. The existing drill press machine is also very heavy and hard to carry around. It can only be used at home or workplace.

Due to the problem faced, this device is developed to ease our life. The aims of this portable drill press machine are to help people to do drilling in a perfect angle since the angle of the spindle is fixed, the holes that are drilled are precisely and consistently. The workpiece can also be clamped to the table so that the operations are much more stable and secure. This machine will be much lighter than the existing drill press machine. This is because, the drill press machine is small in size. So, the device developed is easy to carry anywhere just like the hand-held drilling machine.

The fabrication process will involve measuring which is very important to ensure that all the attachments fit well. Besides that, drilling, cutting, welding are also needed during fabrication. With the development of the portable drill press machine, it is believed that it will be helpful to more people who want to do their mini project at home or do anything that involves drilling operations. Plus, it is affordable for students