

UNIVERSITI TEKNOLOGI MARA

**DESIGN, ANALYSIS AND
FABRICATION OF ADJUSTABLE
WRENCH**

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ABSTRACT

Adjustable wrench is a project implemented to ease maintenance work especially for woman. The existing adjustable wrench act as loosen and tighten nuts and pipe connectors of different sizes. Based on the survey, there are a lot of problems that users have faced while using adjustable wrench. In the production of project design, there are several factors that need to be considered. Among the factors are in terms of material selection, design concept, measurement analysis, engineering drawing, engineering calculation and CAD's drawing. This project presenting an implement of theoretical and technical skills in design and fabricate the adjustable wrench using recyclable items. By using all the knowledge, this project can reduce the time of use and can lower the risk of being injured while using the product. Gantt chart as guideline for doing this project. The material used for the project are easy to get and affordable. Use of the machine must be in accordance with the SOP and safety set to prevent any accidents while doing this project. Expected result from this project is to hope that this project can achieve the objectives, which can benefit the society and can reduce the injury at home and at work, fulfil, and can overcome the problems that have been stated by respondents.

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CHAPTER ONE: INTRODUCTION

1.1 Background of Study

Many people using an adjustable wrench in life. For the mechanics, they use it almost every day while at home or at work, but for civilian they use it at least once or twice in a month. Adjustable Wrenches is the instruments have one fixed jaw and one adjustable jaw that will accommodate a variety of other nut sizes. When you take the adjustable pull, make sure you are bending the way toward the adjustable position, putting pressure on the fixed jaw. This can keep you from stripping or rounding the fastener. These wrenches are a good option for any toolbox because you will constantly get the wrench size you want.

In the market, there are a lot of types and brands of adjustable wrench. Channellock 8WCB Wide Azz 8-inch is the best adjustable wrench that every family should have. This product is very good because the usage is overall. From the garden hose to a child's toy. This product is designed to be high-cost product because it has a good specification. Although this product has a good review but sometimes this product may be broken if the wrench is not being service form a time to a time.

Having a complete set of a toolbox at home is a dream for some man but not for a woman. For the single mom or women who are renting this will be a major problem if unwanted things happened when they are alone especially at 2 am in the morning.

1.2 Problem Statement

Being aware of the existence of adjustable wrench is good but that is not enough to measure the understanding of adjustable wrench. Especially for woman, manage to use and mastery the tools is hard. Sometimes using an adjustable wrench may be a hard task or unwanted task to do especially for woman. This is because the design or the concept of adjustable wrench hardly to understand by woman. Handling the adjustable wrench might be seem easy for a man but only a few of them do not know how to handle adjustable wrench. The components of adjustable wrench itself sometimes can occur problems to the user.

Based on figure 1.2, the survey that had been conducted, 46.3% from the total respondent's answer, the worm screw part sometimes can be hard to reach sometimes. using an adjustable wrench frequently might cause an injury to our finger. the less answer that has been stated by respondents as much as 13.7%, was hard to operate. Second highest problem was heavy as 28.4% respondents state the same problem.