UNIVERSITI TEKNIKAL MALAYSIA MELAKA

AUTOMATIC PORTABLE SHEET CUTTER

This report is submitted in accordance with the requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor of Computer Engineering Technology (Computer Systems) with Honours.

by

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FACULTY OF ELECTRICAL AND ELECTRONIC ENGINEERING TECHNOLOGY

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Tajuk: AUTOMATIC PORTABLE SHEET CUTTER

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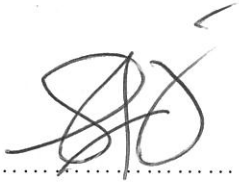
APPROVAL

This report is submitted to the Faculty of Electrical and Electronic Engineering Technology of Universiti Teknikal Malaysia Melaka (UTeM) as a partial fulfilment of the requirements for the degree of Bachelor of Computer Engineering Technology (Computer Systems) with Honours. The member of the supervisory is as follow:

Signature: 

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ABSTRAK

Pemotong digunakan hampir setiap hari dalam kehidupan seharian. Dalam kamus Oxford, pemotong bermakna perkara yang memotong sesuatu seperti gunting dan pisau. Di kebanyakan kedai perkakasan tempatan, mereka masih menggunakan pisau dan gunting apabila pelanggan ingin membeli kain atau tikar getah. Pemotongan manual ini boleh menyebabkan kesilapan manusia seperti panjang kain yang telah dipotong tidak tepat. Oleh itu, projek ini adalah penyelesaian kepada kebanyakan kedai perkakasan tempatan yang boleh melakukan pemotongan secara automatik. Terdapat kedua-dua perisian dan perkakasan. Arduino adalah nadi utama projek ini digunakan untuk mengawal pemotongan dan memastikan panjang helaian tepat. Projek ini bermula dengan pengguna memasukkan panjang yang dikehendaki dipaparkan pada LCD menggunakan papan kekunci. Motor kemudian akan menggulung lembaran sehingga panjang dicapai. Seterusnya, pemotong akan melakukan kerja untuk memotong helaian itu. Dengan pemotong helaian automatik ini, pengguna akan mendapat ketepatan pemotongan. Bahan untuk membuat pemotong ini juga berpatutan yang membuat projek ini menjimatkan.

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ABSTRACT

Cutter is used almost every day in daily life. In Oxford dictionaries, cutter means things that cuts something and things here can be such as scissors and knife. In most local hardware shops, they still use knives and scissors when customers want to buy cloth or rubber mats. This manual cutting can lead to human error like the length of the cloth that has been cut is inaccurate. Therefore, this project is the solution to most local hardware shops which is can do the automatic cutting. There are both software and hardware included. The Arduino is the main heart of the project is used to control the cutting and make sure the length of the sheet is accurate. This project starts by user key in the desired length displayed on LCD using keypad. The motor then will roll the sheet until the length is achieved. Next, the cutter will do the job to cut the sheet. With this automatic portable sheet cutter, user will get the precision of cutting. The material to make this cutter also affordable which make this project totally economical.

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DEDICATION

Special thanks to my dear parents, my father, Encik Mustafa bin Mohd Dewa, and my mother, Puan Supaizah binti Harun, for their unconditional support in my studies. I am very honored as my parents to have both of you. Thank you for trusting me and giving me the opportunity to demonstrate my study success and improve my educational journey here at UTeM.

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LIST OF SYMBOLS

Cm - Centimetre

dBm - decibel milliwatt

g - gram

A - ampere

Mm - millimetre

V - voltage

mA - milliampere

KB - kilobytes

MHz - Megahertz

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LIST OF ABBREVIATIONS

SME	-	Small Medium Enterprises
DC motor	-	Direct Current motor
PWM	-	Pulse-width modulation
OTP	-	One-time password
GSM	-	Global system for mobile
IR Sensor	-	Infrared sensor
IDS	-	Intrusion Detection System
LCD	-	Liquid Crystal Display
CAD	-	Computer-aided Design
CNC	-	Computer numerical control
IDE	-	Integrated Development Environment

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The Classification of cutting machines can be distinguished from the cutting materials, and it's divided into metal material cutting machine and non-metal material cutting machine. Metal material cutting machine is split into flame cutting machine, plasma cutting machine, optical device cut machine. Non-metal material cutting machine could be a machine that principally operated by cutter. Numerical control cutting machine is that the use of digital program driving movement of the machine tools, with the movement of the machine tools, cutter will cut the material. The type of cutting machine within the course of mechanical machining includes manual cutting, semi-automatic cutting machine and numerical management cutting machine. Manual cutting is versatile and convenient, however the manual cutting quality is poor, large size error, and therefore the material waste is large with the follow-up process work, whereas poor operating conditions, low production speed. The standard of semi-automatic cutting machine is better. However, it's not appropriate for single, tiny batch and huge work piece cutting. Although other types of semi-automatic cutting machines while reducing the labour intensity of the workers, its function is simple. In bigger industry, most of factory use fully automatic cutting machine, for example, in automation industry which is use cutting machine to cut metal sheet before they became parts of the car. However, in smaller industry

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