UNIVERSITI TEKNIKAL MALAYSIA MELAKA

DEVELOPMENT OF GRAPHICAL USER INTERFACE (GUI) FOR CHECKER BOARD SYSTEM

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

by

MUHAMMAD HANIS BIN KHAIRUDIN

B071710536

960906086073

FACULTY OF ELECTRICAL AND ELECTRONIC ENGINEERING TECHNOLOGY

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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 Electronic Engineering Technology (Telecommunication) with Honours. The member of the supervisory is as follow:

Signature: .....

Supervisor : MRS. NORLEZAH BINTI HASHIM

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Signature: .....

Co-supervisor: MR. AMINNURRASHID BIN NOORDIN

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ABSTRAK

Di dunia moden ini, antara muka pengguna grafik (GUI) adalah salah satu sistem komponen visual interaktif terbaik untuk program komputer. Ini telah digunakan secara meluas di berbagai platform, seperti aplikasi permainan, aplikasi komunikasi, dan lain-lain. Terdapat masalah yang terjadi pada Jurutera Ujian di sebuah syarikat industri di mana peningkatan kerumitan papan beban kerana peningkatan kerumitan Peranti Di Bawah Uji (DUT). Dalam beberapa keadaan, DUT gagal dalam proses pengujian kerana kerosakan komponen pada papan beban. Sebagai jurutera ujian, mereka perlu melakukan pengekodan baris demi baris secara manual untuk mengenal pasti komponen mana di papan beban yang rosak. Proses ini memakan banyak masa. Oleh itu, untuk menyelesaikan masalah ini, kami mencadangkan sistem pemeriksa perkakasan automatik yang dapat menghasilkan pengekodan secara automatik hanya dengan memilih parameter pengujian. GUI yang mesra pengguna akan dirancang untuk sistem ini yang dapat membantu jurutera ujian untuk mengetahui komponen mana yang terdapat dalam papan beban tidak berfungsi. Oleh itu, tujuan projek ini adalah untuk membangunkan Antaramuka Pengguna Grafik (GUI) untuk Sistem Papan Pemeriksa. Projek ini adalah untuk merancang dan mengembangkan Antaramuka Pengguna Grafik untuk sistem papan pemeriksa litar bersepadu (IC) menggunakan Visual Basic Studio dan untuk menganalisis reka bentuk dari segi fungsinya. Projek ini akan menguji 3 perintang yang berbeza dengan Arduino ohmmeter. Hasil dan keadaan akan dipaparkan di antara muka.

Projek ini senang digunakan dan mesra pengguna.

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ABSTRACT

In this modern world, graphical user interface (GUI) is one of the best interactive visual component system for the computer program. This has been widely used in various platform, such as gaming application, communication application, and others. There is a problem that was happen to test engineer in a company of industry where the increasing of the loadboards complexity due to increasing complexity of Device Under Test (DUT). In some situation, DUT failed the testing process due to malfunction of the component on the loadboard. As a test engineer, they need to do line by line coding manually to identify which component on the loadboard was broken. This process consumed a lot of times. So to solve this issue, we proposed an automated hardware checker system which able to generate the coding automatically just by selecting the testing parameter. The user friendly GUI will be designed for this system which able to help the test engineer to find out which components in the loadboard is malfunction. Therefore, the purpose of the project is to develop a Graphical User Interface (GUI) for Checker Board System. This project is to design and develop a Graphical User Interface for integrated circuit (IC) checker board system using Visual Basic Studio and to analyze the design in term of its functionality. This project will test 3 different resistor with Arduino ohmmeter. The result and condition will be display on the interface. This project is easy to use and user-friendly for the user.

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DEDICATION

This project is dedicated to:

My beloved father and mother,

My beloved Family,

My supervisors, My

lecturers

And my friends

Thank you for your moral and physical support.

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LIST OF SYMBOLS

Ω	Resistance
A	Current

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LIST OF ABBREVIATIONS

GUI	Graphical User Interface
IC	Integrated Circuit
MS-DOS	Microsoft Disk Operating System
ORTEP	Oak Ridge Thermal Ellipsoid Plot
MATLAB	Matrix Laboratory
QCA	Qualitative Comparative Analysis
VB	Visual Basic
IDE	Integrated Development Environment
ESCO	Energy Service Company
IPMVP	International Performance Measurement and Verification Protocol
ECM	Electronic Content Management
LCD	Liquid Crystal Display
MAP	Mapping
.NET	Microsoft XML Web Service platform
Mac OS X	Macintosh Operating System X
RGG	R GUI Generator

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CHAPTER 1

INTRODUCTION

1.1 Background

The GUI is an interactive visual component framework that involves graphical elements such as buttons, windows, and switches (Computer Hope, 2019). These graphical elements are sometimes enhanced with sounds, or visual effects like appearance and features. It considered to be more user-friendly than a text-based command-line interface, such as MS-DOS or the shell of Unix-like operating systems.

This system acts a very important function in growing the usability of an application as it is now the primary tool for human computer interaction. Now, the system is widely used in various sector such as industry, academic, and government. However, the system is more useful for industry world for increase the quality and quantities of the product.

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1.2 Problem Statement

Graphical user interface (GUI) can gives helpful ability to ease engineer for identify which component on the load board was broken. This system is valuable for test engineer who has difficulty to identify the damage or broken component where it force them to check the component by used line coding manually. The method using line coding manually for checking the component make the time consumption increase and slow down the productivity.

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In this project, a graphical user interface (GUI) using visual basics will be introduced to create an interface for the testing engineer to interact with Integrated Circuit (IC) hardware checker software.

1.3 Objective

The research purpose are stated as follows:

i. To design and develop a Graphical User Interface for integrated circuit (IC) interface system using Visual Basic Studio.

ii. To analyse the performance in term of its functionality.

1.4 Scope and Limitation of Project

This project is limited to several scope. First, the circuit of Arduino ohmmeter will be made for read the resistance value that want to be test and the data from the circuit will transmit by using the A to B USB cable that connect to the laptop port. The GUI interface program will be built for display the resistance value and calculate the current value for the circuit and the condition of the resistor will be display. This process will repeat by using 3 different resistor. This graphical user interface program can be observed by anybody who has the authorities to access the data and information inside the programme.

1.5 Expected Results

From this project, it is expected that GUI designed is able to reduce the time checking the IC.

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