



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LECTURERS AVAILABILITY DISPLAY BOARD

This report submitted in accordance with requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor's Degree of Electronic Engineering Technology (Industrial Electronics) (Hons.)

by

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BORANG PENGESAHAN STATUS LAPORAN PROJEK SARJANA MUDA

TAJUK: **LECTURERS AVAILABILITY DISPLAY BOARD**

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I hereby, declared this report entitled “Lecturers Availability Display Board” is the results of my own research except as cited in references.

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APPROVAL

This report is submitted to the Faculty of Engineering Technology of UTeM as a partial fulfillment of the requirements for the degree of Bachelor of Electronic Engineering Technology (Industrial Electronics) (Hons.). The member of the supervisory is as follow:

.....
(Project Supervisor)

ABSTRACT

This project is to design and develop a tracking system for the lecturers availability in the faculty based on information entered by the lecturers in the system. This system is facilitated for students to find information, whether the lecturer is available in the office or not if they are not making any appointments. By using a custom Arduino circuit board that connected with system, LED and database management system, students can see the availability of lecturers who they want to contact by viewing the display board that will place at the lobby of the faculty. Therefore, the system will be operates when lecturers log in to the management system. At the login system, lecturers are required to enter the username, password and attendance information. The information that clicked by lecturers in the system were linked directly to the output device on the display board. However, the system will automatically shows lecturers not available if they do not log in to the system. This project developed by using a PHP interface that served with MySQL Database Management System (DBMS) that connected with Arduino application. The system interface and custom Arduino board have been connected through an ethernet module network.

ABSTRAK

Projek ini adalah untuk mereka bentuk dan membangunkan sistem pengesanan ketersediaan pensyarah di fakulti berdasarkan maklumat yang dimasukkan oleh pensyarah di dalam sistem. Sistem ini memudahkan pelajar mencari maklumat sama ada pensyarah yang boleh ditemui di pejabat atau tidak jika mereka tidak membuat sebarang temujanji bersama pensyarah terlebih dahulu. Dengan menggunakan papan litar Arduino yang dihubungkan dengan sistem, LED dan sistem pengurusan pangkalan data, pelajar dapat melihat adanya pensyarah yang mereka ingin bertemu dengan melihat papan paparan yang akan diletakkan di lobi fakulti. Oleh itu, sistem akan beroperasi apabila pensyarah log masuk ke sistem pengurusan. Pada sistem log masuk, pensyarah dikehendaki memasukkan maklumat nama pengguna, kata laluan dan kehadiran. Maklumat yang diklik oleh pensyarah dalam sistem itu mempunyai kaitan secara langsung kepada peranti output di atas papan paparan. Walau bagaimanapun, sistem secara automatik akan menunjukkan pensyarah tidak boleh didapati jika mereka tidak log masuk ke dalam sistem. Projek ini dibangunkan dengan menggunakan PHP antara muka yang berkhidmat dengan MySQL Sistem Pengurusan Pangkalan Data (DBMS) yang dihubungkan dengan aplikasi Arduino. Antara muka sistem dan papan Arduino telah disambungkan melalui rangkaian modul ethernet.

DEDICATIONS

I would like to dedicate this project to my supervisor, Mr Tengku Mohd Faisal Bin Tengku Wook that assists me to develop this project. I also want to thanks to my family members, lecturers and friends that help me in developing this project

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LIST OF SYMBOLS AND ABBREVIATIONS

PHP	-	Hypertext Preprocessor
DC	-	Direct Current
V	-	Volt
IDE	-	Intergrated Development Environment
DBMS	-	Database Management System
GUI	-	Graphical User Interface
RF	-	Radio Frequency
GSM	-	Global System for Mobile
LED	-	Light emitter diode
LCD	-	Liquid Crystal Display
PIC	-	Peripheral Interface Controller
PCB	-	Printed Circuit Board
PWM	-	Pulse Width Modulation
Tx	-	Transmitter
Rx	-	Receiver
RAD	-	Rapid Application Development
RFID	-	Radio Frequency Identification Devices
%	-	Percentage
\$	-	Dolllar sign

CHAPTER 1

INTRODUCTION

This chapter presents the overview for overall description for this project. Hence in this chapter also provides brief information of the background of project, problem statement, objective and scope.

1.1 Background of the project

This project was a combination of software and hardware application. This project is designed and developed system application for students to check availability of lecturers at the office. This system facilitates for students to access the lecturers availability information. Therefore, the system operates when lecturers log in to the system management. At the login system, lecturers are required to enter the username, password and availability information. The LED on the device application will light ON whether green or red color of LED based on the information entered by lecturers in the system. However, the system will automatically showed lecturers are not available if they do not log in to the system.

1.2 Problem Statement

After visiting a few departments and faculty, which is Faculty of Engineering Technology (FTK) and Faculty of Mechanical Engineering (FKM) there is no proper system to monitor the availability of staff or lecturers. This was affected and make difficult for students to meet the lecturer if any urgency to ask or to see the lecturer without making early appointment. Besides that, some department uses the manual log book to keep track availability of staff. These records are not precise and sophisticated. The method that they have used were not secured because the records may lose and not been updated.

1.3 Objectives

The objective of this project is to design and develop lecturers availability display board system by using a PHP interface that served with MySQL Database Management System (DBMS) and Arduino application. Besides that, these projects are to expand the knowledge in programming and electronic circuit understanding.

1.4 Scope

The scope of this project is to design and developed lecturers availability display board system for students tracking or check the availability of lecturers at the office. The custom Arduino circuit has been constructed that contains of ATMEL328P as a microcontroller, PCF8574A as input address and LED display as output device. These projects produced by utilizing a PHP interface that served with MySQL Database Management System (DBMS) that connected with Arduino application. The system interface and custom Arduino board have been united through an ethernet module network. There are two concepts, scope of works were identified in this project, which is how the management system and device controls

with the network and the concept how the server system sending data to an output device.

Software development includes of c-programming that created for an Arduino application to generate the link data system from input to output display. Nonetheless, to developed graphical interface, phpMyAdmin have been selected to create lecturers login system page. Output design of this project generally referred to the details and information that are engendered by the scheme. Consequently, output is the main cause to get the arrangement and the fundament on which proper system is useful for users and developers. The production pattern in such a manner that it is attractive, convenient and informative. It's designed with various features, which attain the information output more pleasing.

1.5 Flowchart of Lecturers Availability Display Board

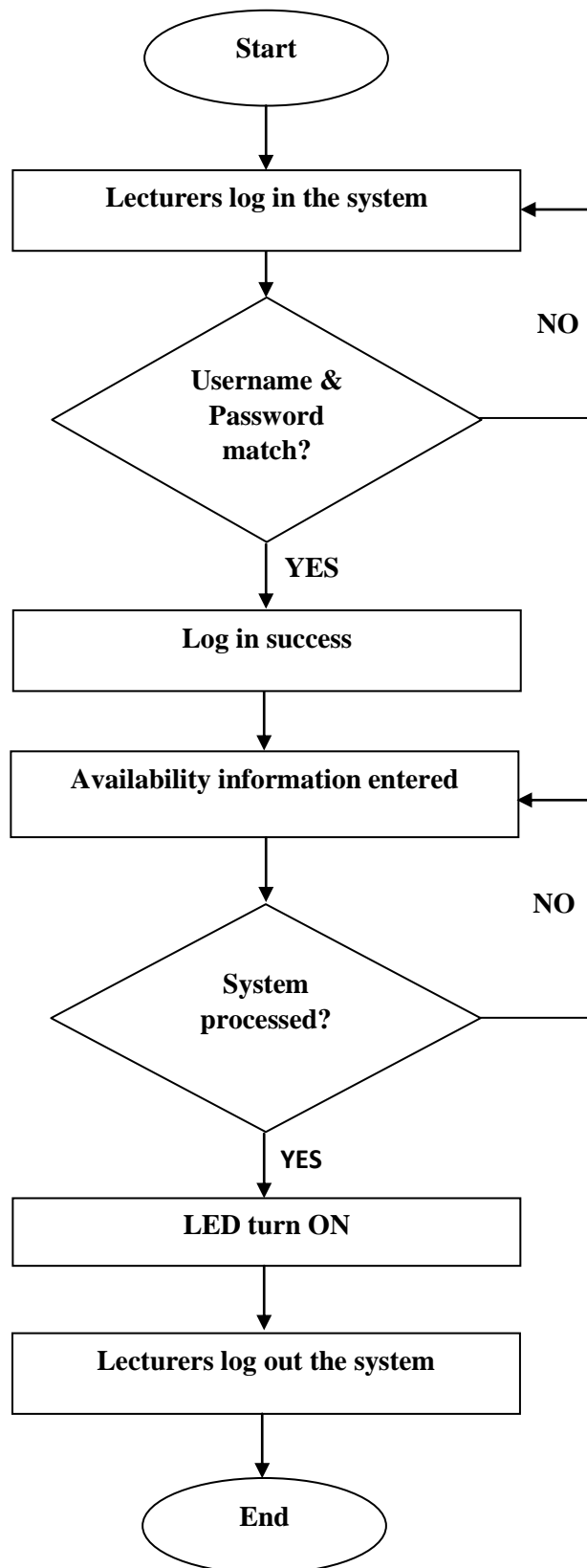


Figure 1.1: Flowchart of Lecturer Availability Display Board

CHAPTER 2

LITERATURE REVIEW

This chapter is the process of reviewing the current state of the knowledge about the topic under discussion. The main purposes of a literature review is to perform some study and analysis on the similar previous or relevant existing project. There are some research studies and other types of literature that have been used to collect the related information about the project. The raw of the material and resources are based on reviews, theoretical articles, case studies, journal articles, books, internet (electronic journal), interview and document sampling. The perspective and method that used will be explained and observe how the project relates to theory and to solve the problem statement of the project. The sources such as reviews, articles, case studies and journal articles can offer a relatively concise, up to date format for information about the system, for example the relevant project is attendance tracking system and all reputable are referred to the journal. Through this chapter, ideas on how to develop a lecturer availability display board can be done.

2.1 Software requirement

2.1.1 PHP MyAdmin administration system

These projects have used a PHP graphical interface because it is powerful enough to be at the core of the biggest of billing or server system on the web that can run any created server system's user. These systems are called as phpmyAdmin that free and open source tool written intended to handle the administration of MySQL with the use of a web browser. PHP is a file that contains text, HTML, CSS, JavaScript and PHP code that will execute on the server and the result is returned to the browser as plain HTML.

PHP is a recursive acronym for “PHP: Hypertext Preprocessor” used to manage dynamic content, database, session tracking or build entire e-commerce site. These server development has been caused because it can perform various tasks such as creating, modifying or deleting databases, tables, fields or rows, executing a SQL statement or managing users and permission. PHP systems are compatible with various platforms and almost servers, used today, for example, runs on Windows, Linux, Unix, Mac OS, Apache, and IIS. Furthermore, PHP is easy to learn and run efficiently on the server side. However, the simplest way to think of PHP is an interpreted C that can embed in HTML documents. The language of PHP is use similar with C language, except untyped variables, a whole lot of Web specific libraries built in everything hooked up will directly to the web server. There are some similarities and differences between PHP and C program language as stated below:

Similarities

(i) Syntax

Broadly speaking, PHP syntax is the same as in C: Code is blank insensitive, statements are terminated with semicolons, function calls have the same structure (`my_function (expression1, expression2)`), and curly braces (`{ and }`) make statements into blocks. PHP supports C and C++-style comments (`/* */` as well as `//`), and also Perl and shell-script style (`#`).

(ii) Operators

The assignment operators (=, +=, *=, and so on), the Boolean operators (&&, ||, !), the comparison operators (<, >, <=, >=, ==, !=), and the basic arithmetic operators (+, -, *, /, %) all behave in PHP as they do in C.

(iii) Control structures

Basic control structures (if, switch, while, for) behave as they do in C, including supporting break and continue. One notable difference is that switch in PHP can accept strings as case identifiers.

(iv) Function names

As peruse the documentation, there have many function names that seem identical to C functions.

Differences

(i) Dollar signs

All variables are denoted with a leading \$. Variables do not need to be declared in advance of an assignment, and they have no intrinsic type.

(ii) Types

PHP has only two numerical types: integer (corresponding to a long in C) and double (corresponding to a double in C). Strings are of arbitrary length. There is no separate character type.

(iii) Type conversion

Types are not checked at compile time, and type errors do not typically occur at runtime either. Instead, variables and values are automatically converted across types as needed.

(iv) Arrays

Arrays have a syntax superficially similar to C's array syntax, but they are implemented completely differently. They are actually associative arrays or hashes, and the index can be either a number or a string. They do not need to be declared or allocated in advance.

(v) No structure type

There is no structure in PHP, partly because the array and object types together make it unnecessary. The elements of a PHP array need not be of a consistent type.

(vi) No pointers

There are no pointers available in PHP, although the tapeless variables play a similar role. PHP does support variable references. You can also emulate function pointers to some extent, in that function names can be stored in variables and called by using the variable rather than a literal name.

(vii) No prototypes

Functions do not need to be declared before their implementation is defined, as long as the definition can be found somewhere in the current code file or included files.

(viii) Memory management

The PHP engine is effectively a garbage-collected environment (reference-counted), and in small scripts there is no need to do any deallocation. You should freely allocate new structures - such as new strings and object instances. IN PHP5, it is possible to define destructor for objects, but there is no free or delete. Destructors are called when the last reference to an object goes away, before the memory is reclaimed.

(ix) Compilation and linking

There is no separate compilation step for PHP scripts.

(x) Permissiveness

As a general matter, PHP is more forgiving than C (especially in its type system) and so will let you get away with new kinds of mistakes. Unexpected results are more common than errors.

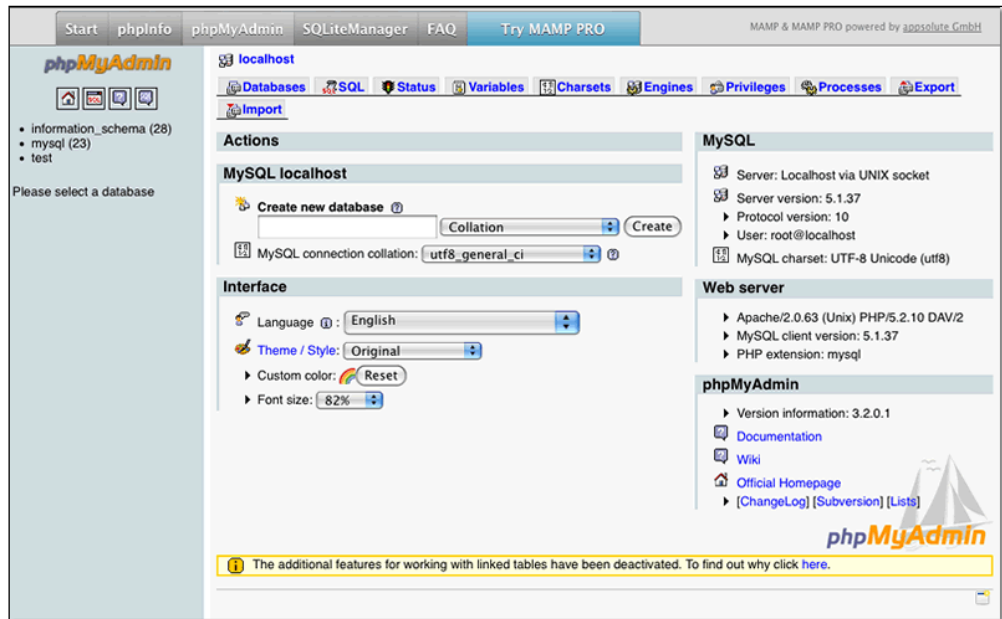


Figure 2.1: PHP MyAdmin administration monitor page