

# LAB MARKS AUTOMATION SYSTEM

by

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of the requirements for the degree  
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## **APPROVAL AND DECLARATION SHEET**

**This project report titled Lab Marks Automation System was prepared and submitted by Chuah Lee Kien (Matrix Number: 031020572) has been found satisfactory in terms of scope, quality and presentation as partial fulfillment of the requirement for the Bachelor of Engineering (Computer Engineering ) in University Malaysia Perlis (UniMAP).**

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## **SISTEM AUTOMATIK MARKAH MAKMAL**

### **ABSTRAK**

Sistem Automatik Markah Makmal mempunyai satu alatan yang dikenali sebagai WiDSTAC (Wireless Data Storage and Acquisition) yang diguna oleh pensyarah atau pembantu makmal untuk memasukan markah dan melihat kembali markah yang telah disimpan ke dalam sistem. Sistem ini guna penghantaran tanpa wayar. Perkakasan yang diguna ialah LCD, papan kekunci, modul RF, pengawal mikro 8051, MAX 232, TIP 31C, transistor BC547 dan kuasa regulator. Bahagian perisian mengguna bahasa penghimpuan pengawal mikro 8051, Microsoft Access dan Visual Basic untuk membuat antaramuka bagi papar markah makmal. Microsoft Access digunakan untuk menyimpan data dan ia diguna sebagai pangkalan data. Sistem ini berfungsi dalam dua hala-separa dimana hanya satu penghantaran dibuat pada satu masa. Dalam menu WiDSTAC, terdapat 2 fungsi yang boleh dipilih oleh pengguna, samaada fungsi 'Add' atau fungsi 'Find'. Fungsi 'Add' digunakan untuk memasukan markah ke sistem. Fungsi 'Find' digunakan untuk memaparkan markah yang telah simpan. Statistic markah bagi jumlah pelajar, markah tertinggi, markah terendah and graf (Markah berbanding Numbor Meja) bagi satu kumpulan pelajar dalam makmal akan dipaparkan dalam aplikasi Visual Basic. Sistem ini telah berjaya dibina seperti mane yang dinyatakan diatas.

## **LAB MARKS AUTOMATION SYSTEM**

### **ABSTRACT**

Lab Marks Automation System is a system where have one device name as WiDSTAC (Wireless Data Storage and Acquisition) that is used by lecturers or lab tutor to key in student's mark and also can view back the mark that been saved inside the system. The system is using wireless connection. For hardware part, it uses LCD, Keypad, RF module, microcontroller 8051, MAX 232, TIP 31C, transistor BC547 and power regulator. In software part, it is using programming 8051, Microsoft Access and Visual Basic use to make interface program to display the lab marks result. Microsoft Access used to save the data and keep it as database. This system work in half duplex transmission where just one transmission in a moment. In the menu of WiDSTAC there is 2 function that user can choose either 'Add' function or 'Find' function. 'Add' function is to key in student marks to system. 'Find' function is to call the exited marks to display it. Mark statistic for total students, lower mark, higher mark and graph ( Mark Versus Table Number) in one group of lab will display in Visual Basic's application. This system is successfully works as mention like above.

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## LIST OF SYMBOLS, ABBREVIATIONS OR NOMENCLATURE

|        |  |
|--------|--|
| ADO    | ActiveX Data Objects                               |
| ALE    | Address Latch Enable                               |
| ASCII  | American Standard Code for Information Interchange |
| BJT    | Bipolar Junction Transistor                        |
| BPS    | Bits Per Second                                    |
| CPU    | Computer Processing Unit                           |
| DAO    | Data Access Objects                                |
| DCE    | Data Communication Equipment                       |
| DTE    | Data Terminal equipment                            |
| EA     | External Access                                    |
| E      | Enable   |
| GND    | Ground   |
| GUI    | Graphical User Interface                           |
| I/O    | Input/Output                                       |
| ISP    | In System Programming                              |
| Lab.   | Laboratory   |
| LCD    | Liquid Crystal Display                             |
| MOSI   | Master Out Slave In                                |
| MISO   | Master in Slave Out                                |
| UniMAP | University Malaysia Perlis                         |
| PC     | Personal Computer                                  |
| PCB    | Printed Circuit Board                              |
| PSEN   | Program Store Enable                               |
| RAM    | Random Access Memory                               |

|         |                                      |
|---------|--------------------------------------|
| RDO     | Remote Data Object                   |
| ROM     | Read Only Memory                     |
| RF      | Radio Frequency                      |
| RS      | Register Select                      |
| RxD     | Received Data                        |
| R/W     | Read/Write                           |
| SCK     | Serial Clock Output                  |
| TTL     | Transistor-Transistor Logic          |
| TxD     | Transmitted Data                     |
| WiDSTAC | Wireless Data Storage and Acquisiton |
| V       | Volt                                 |