

CHAPTER 1

INTRODUCTION

1.1 Background

Lab Marks Automation System allows half duplex communication. The user at the system can send data to the PC and can receive data. WiDSTAC is combination of LCD, keypad, Microcontroller AT89S52, RF Module transmitter TX-F9912(315Mhz), RF Module receiver RX-PCR1A(315Mhx), transistor TIP31C, transistor BC547 and antenna.

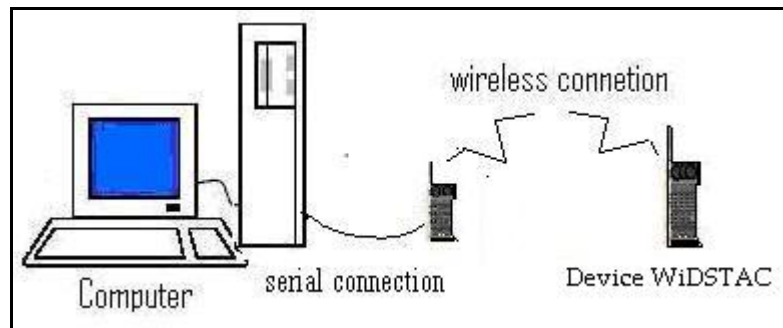


Figure 1.0: Lab Marks Automation System

To allow communication with the PC, another circuit was developed and connected to the serial port at the CPU. For communicate to PC with WiDSTAC, it is need another circuit that connect serially to serial port of CPU. It is contain RF Module transmitter TX-F9912(315Mhz), RF Module receiver RX-PCR1A(315Mhx), RS 232 Driver (buffer), transistor BC547 and antenna.

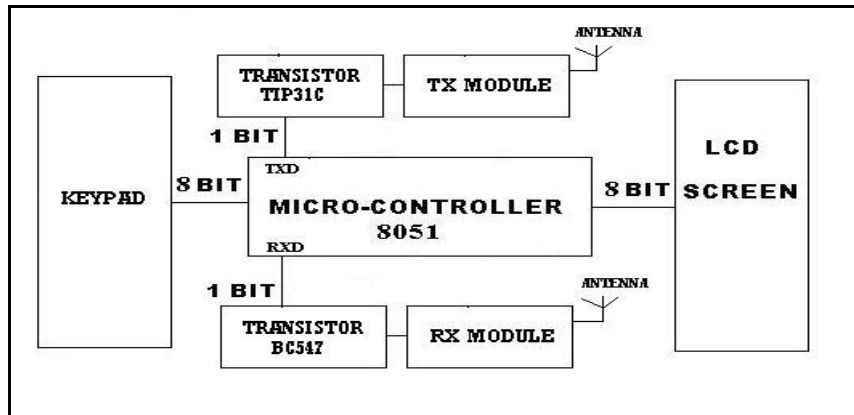


Figure 1.1: Block diagram for WiDSTAC

When PC get the data, it will save it in Microsoft Access. Visual Basic is used to build graphical user interface to display the data and stored in Microsoft Access (database).

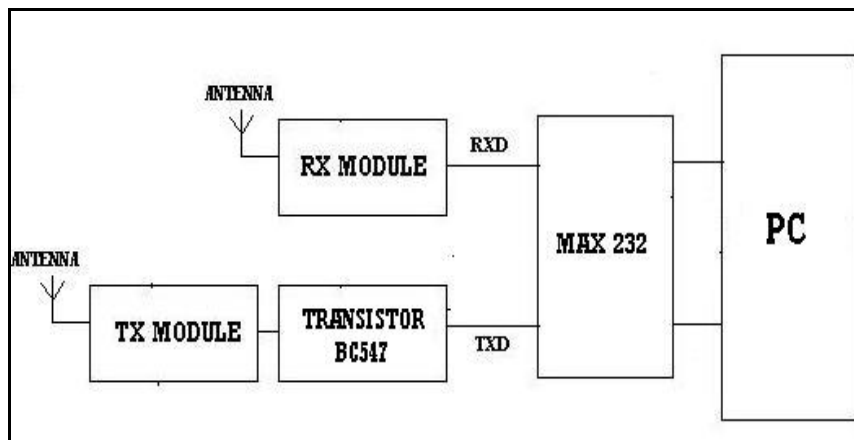


Figure 1.2: Block diagram for receiving or transmitting from/to PC part

1.2 Objectives of Project

- Save time and energy. The database is created automatically in this system is save time and energy of users. At same time it also easy the process to manage databases.
- Greater assurance that marks statistic results is correctly or less human error occurs. With the Lab Marks Automation System software, the Mark statistic for total

students, lower mark, higher mark and graph (Mark Versus Table Number) in one group of lab will generated automatically.

- To implement this new system in our university.

1.3 Scope and Project Background

This project would require practice of what have learned in the last four years at UniMAP. Basically there are 3 parts of the project. Part 1 is WiDSTAC part (please refer to Figure 1.1) Part 2 is about circuit for receiving or transmitting from/to PC part. (please refer to Figure 1.2) Part 3 is about the created database (Microsoft Access), Visual Basic to act like interface to users and 8051 programming.

When data from WiDSTAC want to send to PC, it will go thru Transistor TIP31C (apply 9v to RF Module transmitter TX-F9912) then go to RF Module transmitter TX-F9912 then via wireless network. While RF Module receiver RX-PCR1A in PC part will detect the data that been send by WiDSTAC. After that, it will go to buffer (max 232) and send to PC.

When user ask for display a data in LCD. The data will come from database from PC go to buffer then transistor BC547 (to invert signal) and then RF Module transmitter TX-F9912 via wireless network. Module receiver RX-PCR1A in WiDSTAC will detect the signal and past it to transistor BC547 (to invert back the signal). After that, it will go to microcontroller and then send to LCD to display it.