



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

**ALERT MESSAGE BY USING WIRELESS SYSTEM FOR
PIGEON HOLE**

This report submitted in accordance with requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor of Electronics Engineering Technology (Industrial Electronics) with Honours

by

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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 Engineering Technology (Electronic Industry)(Hons.). The member of the supervisory is as follow:

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(Project Supervisor)

ABSTRACT

Nowadays, every university has put the pigeon hole. This box is a device where all the information submitted as assignment, letters and others document. Through this system, it is easier for the users, especially students to send all the information into it. With the use of technology, the wireless transmission is used to facilitate the lecturer or trainer to check all the information in them without repeatedly viewed. Therefore, creates an "Alert Message by Using Wireless System for Pigeon Hole" is to facilitate the implementation of this system. This system will get information from users especially when infrared obstacles avoidance sensor will detect send a signal to the transistor drive relay and sends to transmitter circuit. Signal from the transmitter circuit will send a signal to the receiver circuit. The receiver circuit sends signal to transistor drive relay. Indirect signal can be sent to the circuit to control the pitch of the signal sent to the coding of the LCD display. The display on the LCD will display the message on the box of pigeon hole

ABSTRAK

Pada masa kini, setiap universiti telah meletakkan kotak meletakkan maklumat-maklumat di luar bilik pensyarah. Kotak ini adalah alat di mana semua maklumat yang di masukkan di label sebagai tugas, surat dan dokumen-dokumen lain. Melalui sistem ini, ia adalah lebih mudah untuk pengguna, khususnya pelajar untuk menghantar semua maklumat yang ke dalamnya. Dengan penggunaan teknologi, penghantaran wayarles digunakan untuk memudahkan pensyarah untuk memeriksa semua maklumat dalam mereka tanpa berulang kali dilihat. Oleh itu, mewujudkan "Mesej Peringatan dengan Menggunakan Sistem tanpa wayar untuk Pigeon Hole" adalah untuk memudahkan pelaksanaan sistem ini. Sistem ini akan mendapat maklumat daripada pengguna terutama apabila sensor inframerah halangan mengelakkan akan mengesan menghantar isyarat kepada geganti memandu transistor dan menghantar kepada pemancar litar. Isyarat dari litar pemancar akan menghantar isyarat ke litar penerima. Litar penerima menghantar isyarat ke pemacu transistor isyarat relay. Indirect boleh dihantar ke litar untuk mengawal padang isyarat yang dihantar kepada pengekodan paparan LCD. Paparan pada LCD akan memaparkan mesej pada kotak lubang penghantaran maklumat.

DEDICATIONS

Special dedication to my loving family, all my siblings, and my kind hearted supervisor Mr. Tengku Mohd Faisal bin Tengku Wook and also dearest friends.

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LIST OF SYMBOLS AND ABBREVIATIONS

WSN	=	Wireless Sensor Network
PIC	=	Programmable Integrated Circuit
LCD	=	Liquid Crystal Display
LED	=	Light Emitter Diode
GSM	=	Global System for Mobile Communication
SMS	=	Short Message Service
IR	=	Infrared Sensor
ADC	=	Analog to Digital Converter
RAM	=	Random Access Memory
ROM	=	Read Only Memory
RFM	=	Radio Frequency Module
PLC	=	Programmable Logic Controller
USB	=	Universal Serial Bus
DAC	=	Digital to Analog Converter
RISC	=	Reduced Instruction Set Computing
GND	=	Ground
PWRT	=	Power Up Timer
POR	=	Power On Reset
EEPROM	=	Electrically Erasable Programmable Read-Only Memory
PC	=	Personal Computer

CPU	=	Central Processing Unit
IO	=	Input Output
PCB	=	Printed Circuit Board
Tx	=	Transmitter
Rx	=	Receiver
PICC	=	Programmable Integrated Circuit C Language
MCU	=	Microcontroller Unit
ISIS	=	Interactive Spectral Interpretation System
VSM	=	Virtual System Modelling
SPST		Single Pole Single Throw
SPDT		Single Pole Double Throw
DPST		Double Pole Single Throw
DPDT		Double Pole Double Throw

CHAPTER 1

INTRODUCTION

1.0 Overview

Nowadays many university have a box of pigeon hole to easier student or clerk sending a document such as assignments, letter and others document. This box of pigeon hole function is student can send their document without meet the lecture, only sends to the box where placed outside lecture room. The situation is when students or clerks sending the document, the lecture didn't know the quantity of the document that they sends. Besides that, lectures didn't know the type of documents that they sends. By using technology that have in Malaysia, wireless the best way to connect two ways communication to easier lectures know the quantity and types of documents they sends.

Wireless Sensor Networks are responsible for sensing noise, interference, and activity in data collection networks. This allows us to detect relevant quantities, monitor and collect data, formulate meaningful user displays, and to perform decision-making functions. A wireless sensor network (WSN) sometimes called a wireless sensor and actor network are spatially distributed autonomous sensors to monitor physical or environmental conditions, such as temperature, sound, pressure, etc. and to cooperatively pass their data through the network to a main location. The more modern networks are bi-directional, also enabling control of sensor activity. The development of wireless sensor networks was motivated by military applications such as battlefield surveillance; today such networks are used in many industrial and consumer applications, such as industrial process monitoring and control, machine health monitoring, and so on.

The function of Infrared Obstacles Avoidance Sensor is adaptable to the environment, it has a pair of infrared transmitting and receiving tube, tube infrared emit a certain frequency, when detecting direction meet with obstacles (reflecting surface), reflected infrared receiving tube, after the comparator circuit processing, green indicator will light up, at the same time signal output interface to output digital signal (a low level signal). With the help of the Peripheral interface Controller (PIC), the notification message from the loaded that enter to the Alert Message by Using Wireless System for Pigeon Hole, the PIC can be used as a controller to sends to a liquid-crystal display (LCD). LCD is a flat panel display, electronic visual display, or video display that uses the light modulating properties of liquid crystals. Liquid crystals do not emit light directly. The LCD was displays the notification message from the box of pigeon hole with the type or the quantity of the documents.

Suggestion, this project has been initiated with the motivation to assist lectures to improve the situation and make the placed became technologies by using this project known as Alert Message by Using Wireless System for Pigeon Hole. Therefore, this project aims to make one box of pigeon hole to easier lectures know type of documents in the box and count the quantity of the documents sends. The figure 1.1 shows the block diagram project.

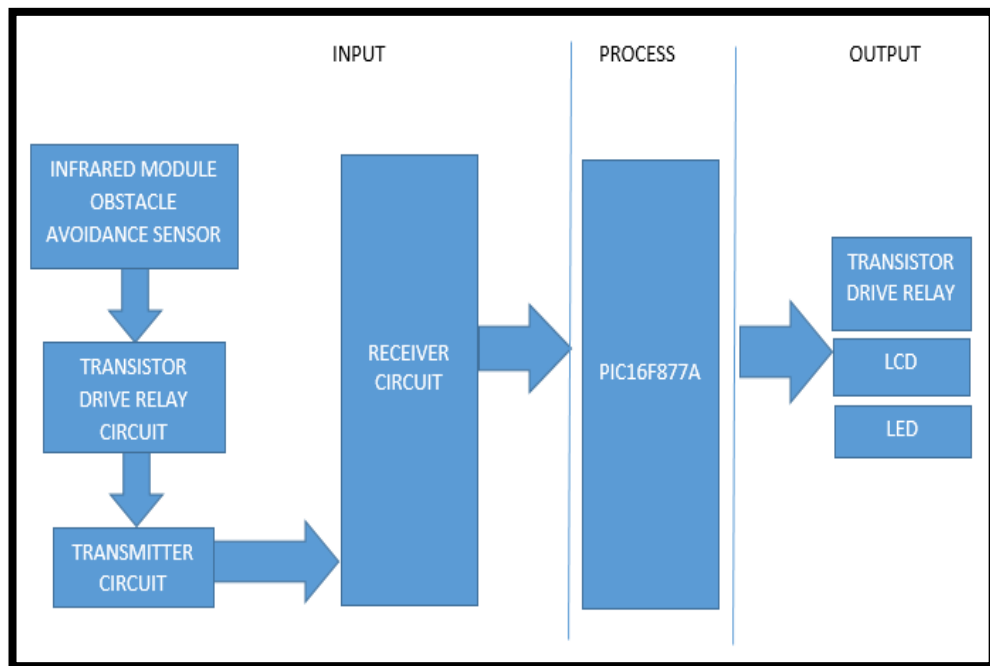


Figure 1.1: Block Diagram

1.1 Problem Statement

In faculty technologies engineering, outside lecture's office have a box of pigeon hole. There are many box of pigeon hole with lecture's names. Every day, mostly student are sending document such as assignments, letters and others document to the Alert Message by Using Wireless System for Pigeon Hole. The problem is student can send the document but the lectures can't know the type of document that student sends. Besides that, lectures can't go to see the box of pigeon hole many times because the box is placed outside the lecture's office. Moreover, with this project, it is easier and make the system with technologies that can improve the problem happen.

Based on the microcontroller that used is Peripheral Interface Controllers (PIC), the notification message from the box of pigeon hole can view based on the LCD

display that placed on the lectures table. The LCD can display the count of document either assignments, letters or others documents. PIC microcontrollers (Peripheral Interface Controllers), are electronic circuits that can be programmed to carry out a vast range of tasks. They can be programmed to be timers or to control a production line and much more. The type of document can student send with their slot at the box of pigeon hole. Lectures can't go every times to take out the document because from the LCD display the notification message from the box with program at the PIC.

They are found in most electronic devices such as alarm systems, computer control systems, phones, in fact almost any electronic device. LCDs are available to display arbitrary images (as in a general-purpose computer display) or fixed images which can be displayed or hidden, such as preset words, digits, and 7-segment displays as in a digital clock. They use the same basic technology, except that arbitrary images are made up of a large number of small pixels, while other displays have larger elements.

1.2 Objective

The main objective for this project are:

1. Room lecturers will not be congested with student who sent the assignment.
2. Assignment still be sent even if the lecturer is not in the room.
3. Lectures known either the loaded is assignment, letters and others document.
4. Lectures known the quantity of the loaded that entered to the box of pigeon hole.

1.3 Scope

The work scope for this project is design by using software and hardware. Electronic hardware consists of interconnected electronic components which perform analog or logic operations on received and locally stored information to produce as output or store resulting new information or to provide control for output actuator mechanisms. While Computer software or simply software is any set of machine-readable instructions that directs a computer's processor to perform specific operations. Computer software contrasts with computer hardware, which is the physical component of computers. Computer hardware and software require each other and neither can be realistically used without the other. Using a musical analogy, hardware is like a musical instrument and software is like the notes played on that instrument.

For the hardware, the controlled circuit that used is the PIC circuit. The circuit for received and transmitted is connected to the PIC circuit. Then the PIC circuit send by wirelessly using RF module to the LCD display. For the software in this project is coding to know the different width of the loaded and to count the loaded that entered to the pigeon hole box. Then, the LCD can display the notification message based on the documents that send the type and quantity of the documents. Besides that, the output display when the pigeon hole box count for example until 5, the buzzer and LED turn on.

1.4 Expected Output

The expected result that I expect is the project can be present and functional successfully. This is because with the hardware that used can make this box of pigeon hole functional with the software that used. First, when someone send any documents, the box of pigeon hole can sends the signal to the Peripheral Interface Controller and display the notification message at the LCD display at lecture's table. If the message sends, my first expected successful.

Second, with the type of document sends, the box of pigeon hole can count the number of document that students or clerk sends. In this expectation, the functional more on coding that I write in software before transfer to the Peripheral Interface Controller. For example, if in coding set the limit of count is 5 the box of pigeon hole can count the documents limit until 5. From this expectation, lectures can know the number of documents that send without pick up the documents many times. It is easier to pick up when the documents send until the maximum number.

The last expected is when the box of pigeon hole count until limit number, the LED can light up with red color that means the lectures must pick up the documents that have in the box. For example, when the number count until 5, that means the box of pigeon hole is full and must to pick up. Besides that, for this project lectures can be alert when the notification message is sending and can know different type of loaded that entering to the box of pigeon hole.

CHAPTER 2

LITERATURE REVIEW

This chapter discusses about the literature discourse and review of structural analysis and some definition of the components used in this project such as Peripheral Interface Controller (PIC) , RF Module and sensor and etc. through the world, there have many difference sources and researches about the concept, design and implementation of the RF module by using PIC. It also included the investigation of what others have done in this area. This study included the areas of mechanical, electric, electronic and software development. Literature reviews are based on information that obtained from various sources, articles, technical reports, general reports, websites, books and personal communication.

2.0 Synopsis Journal

In this part, it involve in finding information about fundamental related to this project. This includes materials such as text books, journal, manual, websites and catalogs. The table 2.1 below shown the summary of journal: