

INTELLIGENT PIGEON HOLE

Prepared by: Tee Wei Kean

ABSTRACT

The pigeon hole is a small book shelf which has many of compartments. It is used for storing the mails and documents in different compartments and each compartment is normally assigned to different users. Due to some reasons, the users are not able to know the latest incoming documents and mails immediately and they may miss out some important documents and mails.

Hence, this project 'Intelligent Pigeon Hole' is looking into this problem and solving it. The project aims are designing a pigeon hole which is able to detect the presence of the documents inside and able to send the notifications via email to the user. at the same time, different colors of indicator LEDs will turn on according to the remaining capacity in the pigeon hole.

This project can be divided as 3 parts: sensor circuit, PIC and RS232 circuit and the email sending application written in VB. In the sensor circuit, 3 sets of IR sensors pairs formed by one IR LED and one phototransistor are used to detect the presence and the height of the existed documents. LM324 op-amp is treated as comparator to compare the voltage between reference voltage and the phototransistor. The outputs of the op-amp are connected to input pins of PIC and RS232 circuit.

In the PIC and RS232 circuit, PIC18F452 is the chosen microcontroller to perform the signal handling from IR sensor circuit and send the messages to PC through USART function and serial communication based on the signal received. It also controlled the lighting sequence of LED indicator. In the VB application, the program will receive the message from PIC circuit and send the different notification email based on the messages received. The contents of the mail will tell the users about the relevant receiving data and time as well as the remaining capacity in the pigeon hole.

The results obtained have shown he detections in the sensor circuit are successful and stable. The PIC and RS232 circuit is able to turn ON the LED in the specified sequence and sending the messages to the PC accordingly. However, due to the restrictions of ISP (Internet Service Provider), the email is sent unsuccessfully. In this report, the design and mechanism adopted and implemented will be explained in detail and discussed about the problems faced in this project briefly.

Keywords: IR Sensors, PIC18F452, USART, LED, SMTP and email.