DEVELOPMENT OF MICROCONTROLLER BASED BIOMETRIC CLASSROOM DOOR LOCK

A Project Design
Presented to the Faculty of the
College of Communication and Information Technology
Ramon Magsaysay Technological University
Main Campus, Iba, Zambales

In Partial Fulfilment
of the Requirement for the Degree
Bachelor of Science in Computer Engineering

by
Kirk Lee P. Leomo
Vanessa Mae A. Arizo
Joselito D. Dorde

April 2013

Republic of the Philippines
RAMON MAGSAYSAY TECHNOLOGICAL UNIVERSITY
College Of Communication and Communication Technology
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The study hereto attached entitled

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has been prepared and submitted by **Kirk Lee P. Leomo, Vanessa Mae A. Arizo, and Joselito D. Dorde,** who are hereby recommended for oral examination.

ENGR. RICKY S. BARRERA
Adviser

Approved by the Committee of Oral Examiners:

ENGR. MELOJEAN C. MARAVE
Chairman

ENGR. DIONISIO M. MARTIN, JR.
Member

ENGR. MARLON B. ALCANCES
Member

ENGR. MARK E. BISQUERRA
Member

ENGR. MARY JOYCE M. MISLAN
Member

Accepted as requirements for the degree of **Bachelor of Science in Computer Engineering.**

Approved:

MENCHIE DELA CRUZ, MSIT
Dean, CCIT

ABSTRACT

The project design attempted to demonstrate how doors lock system will be constructed using the Zilog Z8F6421 microcontroller, biometric device, LCD, flash drive, keypad and solenoid motor. The microcontroller based Biometric Classroom Door Lock using Zilog Z8f6421 is a locking device with just the touch of your finger. The Biometric Door lock System is an access control system that allows only the registered user to access a room. Upon successful authentication, the user will be allowed to access a restricted room. When the authentication is successful the time when the user arrived is saved in the flash drive and will be displayed on the LCD with the user ID. When the user is inside the room the user can choose whether to lock or unlock the door with the use of designated button at the back of the door. It will also record the time when the user leaves the room by tapping the fingerprint scanner. If the fingerprint is not recognized the door will remain close the buzzer will alarm and an error message will prompt at the LCD. The device generate a Text (* .txt) file in flash drive for the external record of the in and out of the registered users. Only the administrators can create, delete and verify accounts. The administrators can also edit the time and date in the system. The system has a maximum of 3 administrators. To store or create a new account the admin will enter their specified password then select the desired button to add user. The user will tap his/her fingerprint 3 times for secured authentication. To delete account, the administrators will search the user ID to delete accounts. The researchers use # of the keypad to enter and * to exit. The system can handle 3000 specimens of fingerprint with three administrators.

The Biometric Classroom Door Lock is easy to operate. Biometric Classroom Door Lock is a reliable device to do a task such as authorization and safekeeping. It also provides a 100% working scanning device for detecting and searching the image of the fingerprint. The project shows that the key is not important to us when they have this device in our classroom you only need fingerprints and this device to access the door.

Based on the results of the experiments, the project design recommends adding a backup battery for those systems which are powered by electricity. For a better authorization or security, use a better fingerprint scanner or other material that has capability to authenticate the user. Also, programs interfacing circuit with personal computers could be explored.