

Republic of the Philippines  
RAMON MAGSAYSAY TECHNOLOGICAL UNIVERSITY  
College Of Communication and Computer Technology  
Iba, Zambales



**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

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


**DEVELOPMENT OF MICROCONTROLLER  
BASED BIOMETRIC CLASSROOM  
DOOR LOCK**

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.

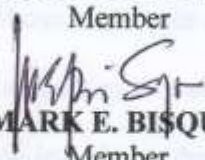
  
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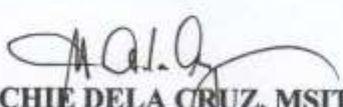
  
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## ABSTRACT

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.