

**ENHANCEMENT OF MICROCONTROLLER BASED
ROOM CARD ACCESS LOCK SYSTEM**

THESIS

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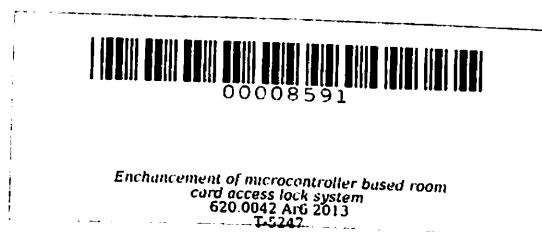
**College of Engineering and Information Technology
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ENHANCEMENT OF MICROCONTROLLER BASED
ROOM CARD ACCESS LOCK
SYSTEM**

**Undergraduate Thesis
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**In partial fulfillment
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ABSTRACT

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The study was conducted to supplement the needs of the Department of Industrial Engineering and Technology with appropriate equipment. It aimed to develop a microcontroller based room card access lock system, fabricate the design project, install the device, test and evaluate the design project.

The design project provide security to all faculty members in the Department of Industrial Engineering and Technology, it helps to avoid bystanders students inside the room and also to save energy inside the room. The system has two major parts; the first part was the microcontroller and the radio frequency identification (RFID). The second part was the panel board; it composed of breaker, contactors, solid state relays, and 12 volts power supply.

The design project was capable in controlling the lock of faculty room the same as opening the electrical fixtures with the use of the radio frequency system. Each of the faculty members has their own coded key card in entering and leaving the room. The results of the evaluation revealed that project design was very satisfactory, ten participants rated the design project with the average mean of 4.57. Objectives of the study were satisfied; however, there were some recommendations and to further enhance the project design such as adding manually open of the solenoid bolt, the uninterrupted

power supply (UPS) in terms of power down or power loss, and separated switch near to the faculty members.

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INTRODUCTION

Protection is necessary in our society in terms of securing facilities and a person. Safety is the degree of protection against danger, damage, loss, and crime. Securities as a form of protection are structures and processes that provide or improve security as a condition. Protection is similar with the following concept: safety, continuity, reliability. In protecting facilities, it a lock system which can be either mechanical or electronic. Such a security system maybe unlock using by a physical object (such as a key, keycard, fingerprint, RFID card, or security token) or secret information (such as a key code or password), or combination of more than one of these. This is very essential to all aspects for safekeeping and protection of all important equipment.

The Department of Industrial and Engineering Technology, has a traditional lock system installed in the faculty room for the protection of the room beyond office hours. There are some issues that arise in terms of equipment protection. At the DIET building, some pad locks are accidentally misplaced due to negligence. There are other situations