

**IMPLEMENTATION OF RADIO FREQUENCY IDENTIFICATION (RFID) IN
ATTENDANCE SYSTEM**

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**IMPLEMENTATION OF RADIO FREQUENCY IDENTIFICATION (RFID) IN
ATTENDANCE SYSTEM**

IRMAHIDA BINTI IDRIS

**This report is submitted in partial fulfillment of the requirements for the
Bachelor of Computer Science (Computer Networking)**

**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY
UNIVERSITI TERNIKAL MALAYSIA MELAKA
2009**

DECLARATION

I hereby declare that this project title name of
**IMPLEMENTATION OF RADIO FREQUENCY IDENTIFICATION (RFID) IN
ATTENDANCE SYSTEM**

is written by me and is my own effort and that no part has been plagiarized without
citations.

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DEDICATION

Special thanks to my beloved family and person who always support me for complete this project to achieve the Bachelor of Computer Science in Computer Networking. Besides, I would like to express my special thanks to my supervisor for her sincere help for supervising me in completing this project.

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ABSTRACT

Nowadays, Radio Frequency Identification (RFID) is one of the technologies used in developing Attendance System. The RFID technology is a means of gathering data about a certain item without the need of touching or seeing the data carrier, through the use of inductive coupling or electromagnetic waves. This project was proposed to implementing RFID in Attendance System. The developing of this system are using Microsoft Visual Studio 2005 and Microsoft SQL Server. For implementing RFID, the RFID Reader is employed in the order the system function based on the objective of the project. This project perhaps can help as a guideline and reference to others in developing Attendance System using RFID.

ABSTRAK

Radio Frequency Identification (RFID) adalah antara salah satu teknologi yang digunakan dalam penghasilan Sistem Kehadiran pada masa kini. RFID teknologi bermaksud pengumpulan data tanpa memerlukan sentuhan dan melihat pembawa data melalui gelombang elektromagnetik. Melalui projek ini, RFID digunakan dalam membangunkan Sistem Kehadiran. Projek ini dilaksanakan dengan menggunakan perisian Microsoft Visual Studio 2005 and Microsoft SQL Server. RFID Reader adalah alat yang digunakan supaya mencapai objektif projek ini iaitu mengaplikasikan RFID. Projek ini diharap boleh dijadikan sebagai rujukan kepada semua dalam membangunkan Sistem Kehadiran menggunakan RFID.

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Software Development Environment Setup

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LIST OF ABBREVIATIONS

ABBREVIATION	FULL TERMS
ERD	Entity Relationship Diagram
GUI	Graphical User Interface
ID	Identity
IEEE	Institute of Electrical and Electronics Engineers
PC	Personal Compute
PDA	Personal Digital Assistant
PSM	Projek Sarjana Muda
RFID	Radio Frequency Identification
SDLC	System Development Life Cycle
SQL	Structured Quéry Language
ST	System Testing
STP	Software Test Plan
UAT	User Acceptance Testing
UFH	Ultra-High Frequency
UML	Unified Modeling Language

UT

Unit Testing

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CHAPTER I

INTRODUCTION

1.1 Project Background

The RFID technology is a means of gathering data about a certain item without the need of touching or seeing the data carrier, through the use of inductive coupling or electromagnetic waves. The data carrier is a microchip attached to an antenna. A microchip also called transponder or tag. Radio-frequency identification (RFID) technology is already exists. Therefore, this project would like to apply this automatic identification method for attendance system. RFID can be known in three categories, which are long-distance, medium and short-distance. This project will apply short-distance category of RFID and including of implementing RFID hardware. At their simplest, RFID systems use tiny chips, called "tags," to contain and transmit some piece of identifying information to an RFID reader, a device that in turn can interface with

computers. RFID system is used by the company to represent its employee's identities. In order to implementing RFID technology, employees will need to use RFID card that can communicate with RFID card reader. Obviously, there is an attendance policy in the most of companies. For example, the content of the attendance policy is state that employees or staff cannot be late more than three times. Though, if the situation happens, the system will detect and the information of the staff will be record.

1.2 Problem Statements

Punch card is popular attendance used in many company. This system employs a card and a small clipboard-sized device for recording votes. A punch card or punched card (or punchcard or Hollerith card or IBM card), is a piece of stiff paper that contains digital information represented by the presence or absence of holes in predefined positions. Now almost an obsolete recording medium, punched cards were widely used throughout the 19th century for controlling textile looms and in the late 19th and early 20th century for operating fairground organs and related instruments. It was used through the 20th century in unit record machines for input, processing, and data storage. Early digital computers used punched cards as the primary medium for input of both computer programs and data, with offline data entry on key punch (Schoenfeld, 2001).

The data of employees for the company, which is using punch card, is not kept automatically. Hence, this identification method is not so efficient to be applied nowadays. The problem to make research of this project is the card used by worker is not suitable to apply to RFID device. In this case, RFID card should be use. Besides, the punch card system is difficult to trace actual time and dates. Checking time summary of the staffs is difficult to do by the administrator. Thus, this project will state several objectives to solve these problems.

1.3 Objective

The developer was stated several objectives based on the problems of the previous manual system. The previous attendance system for example punched card system cannot keep data automatically. However there is still having some other computer system keys in attendance record in the database. The manual system is not so efficient to be applied nowadays. There have special card that is used when applying RFID technology in attendance system. Moreover, the punch card system is difficult to trace actual time and dates. Checking time summary of the staffs is difficult to do by the administrator. Before starting this project the developer was stated several objectives to overcome the problems.

Project Objectives:

- To develop attendance system using RFID
- To keep workers information automatically in computer database
- To make easy for administrator to manage staff information
- To avoid date and time setting has be alter by other person
- To secure the employees identity and information
- To make ease on trace actual time and date

To generate attendance report, so that statistical of staff attendance can be view by administrator and staff

1.4 Scope

This project will identify several scope involved. The target users of this are staffs in the working place. The system will developed in this project using smart Card Reader. The operating system will used is Windows XP Professional. The explanation below will state the scope of this project briefly.

- To implementing Radio Frequency Identification (RFID) technology to replace punch card system
- Target user for this project is the administrator and employees in the working area
- This technology will be using by employees to keep their identity when they come to their working place
- The data read from RFID card reader will keep in computer database
- The administrator has a priority to read and write the data, whereas staffs or employees can read the information only
- The actual time and date will be record automatically when staffs swipe their card on RFID card reader

1.5 Project Significance

This project will give benefits for administrator and employees or staffs in the company. In this project, Radio Frequency Identification (RFID) technology will be implementing to replace previous system. The RFID technology will be use to keep