

CHAPTER 1

INTRODUCTION

A. Background of Study

Today, Technology develops very quickly along with the need of human that want easiness, rapidity, and accurate information, especially in identification This technology is called *Radio Frequency Identification* (RFID).

Actually, technology of RFID has been existed since some years ago even some people say that it has been since 1940s. Then, in 1970, this technology was opened for general. Meanwhile, the production of this technology has been started since 1999. The leader of this technology is Texas Instrument, Philips, Sony, and Intermec. In Asia, this technology has been popular since 2005. Now, RFID using becomes popular in Indonesia.

There are many advantages of this system. For instance, it used to security of parking, security of office inventory, even it is used only for employee attendance. RFID system consisted of three basic component, *tag* or *transponder*, *reader*, and *database*. *Tag* RFID is the object labeling tools that has object data. The next is *reader* RFID. It is used as *scanning* tool or information reader tool for reading the information that is in the *tag* RFID itself. The last is *database*, used as tracker and saver for some objects information that is had by *tag* RFID.

Actually, RFID itself was developed from previous identification system, which is *Barcode*. The basic differences between RFID and *barcode* are on scanning system, they are transponder reader or labeling tool. For *barcode*, the process usually is done and using the right position of *tag* and *reader*. If it is not, tag cannot be read by reader. It is the different with RFID system. Where, by only put the RFID close to the reader, the card can be identified.

Parking system in UMS still uses manual system that is the motorcycle or car owner presents *Vehicle Registration Certificate* to the security one by one when they want to go out form UMS parking area. This process spends many times so that it affects the long queue in exit door, especially for busy time. The other bad effects of this way are the students often forget to resave their *Vehicle Registration Certificate* so that they often lose their *Vehicle Registration Certificate*. Fortunately, these problems can be solved by using RFID technology.

In this case, every student or lecturers who want to park in UMS parking area are given RFID tag or *contactless smart card (CSC)* that it has the user information. This card is used to open the exit door. The advantages of using this system are, 1) parking managing will be easier and more quickly, 2) enter and exit data will be more accurate, 3) getting user information easily then it can be done by statistic as the consideration in deciding the policy.

In this time, there are many *auto* identification technologies but RFID (*Radio Frequency Identification*) technology is the cheapest technology from

auto identification to spread out the information easily and accurately. The application of RFID technology that will be used by the writer for applying this system in UMS parking system so that it will make the identification of vehicles easily.

B. Problem Description

Based on the reason of background study above, the writer states some problems:

1. How to design an application system that used RFID technology for parking using tag or card in parking UMS area.
2. How to create a mechanism for secure parking, fast, comfortable, and not at risk of losing important documents such as vehicle registration, driver's license.
3. There is no parking statistic data, for example the amount of vehicles so that parking management is not going well.

C. Scope of Study

The writer gives the limitation of study so that the discussion will be appropriate of the problem statement. They are:

1. Ever RFID *tag* used only for one vehicle.
2. The system used by peripheral is RFID *receiver (reader)* and RFID

transponder (RFID tag)

3. The communication between USB RFID reader
4. The use of basis system on it's the database server used is MySql
5. Hardware controlling using PC and Visual Basic program.
6. Information given system: the number of parked vehicles per time, frequency of park users, the density of lines per time, current number of vehicles inside of the parking area.

D. The Aim of Study

The aim of the study is to design automatic by using RFID technology for facilitating the users (lecturer, employers, and students) especially in UMS.

E. The Benefit of Study

The benefit of study is:

1. For users.
 - a. Controlling and facilitating the management of space for parking area so that it will be better, easier, and the parking data will be more accurate.
 - b. Users receive accurate information so they can take appropriate decisions about parking.
 - c. The management gets fast and accurate information so that it can provide a rapid and appropriate policy.

- d. Help overcome problems such as congestion in the parking lane entry / exit, losing important papers, etc.
2. For researcher

The benefits of this study for the writer are the writer can learn the new knowledge besides the knowledge from his object in lecturing. Moreover, we can design parking system using RFID system (*Radio Frequency Identification*) in UMS.

F. Report Structure

Research paper organization made for making easiness in arranging this study so that it needs to decide the good writing systematic. They are as follows:

CHAPTER I INTRODUCTION

This chapter describes the background of the study, problem statement, limitation of the study, the objective of the study, the benefit of the study and research paper organization.

CHAPTER II LITERATUR

This chapter contains some study of researches and fundamental theories which are used for complete this essay.

CHAPTER III METOD OF THE STUDY

In this chapter, the writer explains the method that is done in designing and implementing.

CHAPTER IV ANALYSIS AND IMPLEMENTATION

This chapter consisted of research finding, from the analyze, designing, result of the testing, and implementing.

CHAPTER V CLOSING

This chapter is consisted of conclusion and suggestion for the all previous studies.