Analysis System Of Attendance Using *Radio Frequency Identification* (RFID)

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1. Introduction

1.1 Background

College in London has been quite a lot, of course, we've all been know it that universities are places of learning activities that must be met by the student, faculty and staff of the college course requires attendance Students, faculty and staff as proof of attendance. Attendance system that is still used manually, which certainly has many short comings example: first waste paper and require many spending on paper, the two students one sign column of the signing, the three professors forgot to bring or put absent so that, absent are not carried away by the lecturers teacher.

2. Theoretical

From research by the author, some relevant journals and some research on Attendance System Analysis Method Using Radio Frequency Identification (RFID) be the reference point for the author to do the analysis and be some review of the literature.

2.1 Attendance Class Attendance System Design

"Class Attendance System Design Using Radio Frequency Identification (RFID) At the University Computer Indonesia" written by Eko Budi Setiawan, Bobi Kurniawan, Vol.1, No. 2, ISSN: 2460-738X, December 2015. Indonesian Computer University is a university that initially using manual attendance system that often has many errors in the attendance system, currently Indonesian Computer University has been following the development of increasingly advanced technology, the system absence that easy and there will be no errors in attendance on each student, by implementing a computerized attendance system at the University Computer Indonesia, will reduce errors in the attendance system by using an ID card with the help of the web and the system will go into the database automatically.

2.1.1 Design of Information Systems Applications Employee Attendance

"Design of Information Systems Applications Using Radio Employee Attendance Frequencyi Identificatio (RFID) at PT. Skyputra Pancasurya "written by Aris, Ikhsan Mubarak, Windy Yuliardi, Ageng Ramadan, Angga Permana, ISSN: 2302-3805, 6-8 February 2015, PT. Skyputra Pancasurya is a company system absence still use manual, attendance system that makes employees await the time of the roll and had to find their names, with the number of employees is quite a lot and quite difficult to search the name and much less effective, with existence attendance system is computerized with the help of the web, RFID systems can assist the task of leadership in checking attendance with this system, the name of each employee has entered into the database directly.

2.1.2 Checking Attendance Framework For Online

"Checking Attendance Framework For Online understudies In Classroom Utilizing Radio Frequency Indetification technology, SVS Institute of Technology Warangal, TS, India" written by Ganddam Jyothi, Kola Sridhar, Reddem Ramakrishna, Gujjala Rakesh, K.Raveena, 66 - 69, March 2016. SVS Institute Of Technology Warangal, India who are still using manual attendance systems, colleges that still use manual attendance system, but with the development of science and technology, which advance started using a computerized attendance system, namely the attendance system using barcode card with RFID method with the help of the web so that attendance directly entered into the database directly and sequentially.

2.1.3 Implementation Of Attendance System

Implementation Of Attendance System based on RFID and GSM with respect to power saving concept, Gujarat Technology University, India" written by Darshankumur Dalwadi, Insiya Guriwala,

Shiwangi Chaudhary, Bmiloni Kapadia and Megha Savalia, E-ISSN 2277 - 4106, Vol.6, No.2, April 5, 2016. Gunjarat Technology University, India. He is a university system register the presence of still using attendance system manually, which means work by just signing their name on paper but the system is less effective, because students often wrong in signing their names own but sign names of other students, the less effective this system, the parties university makes computerized attendance, with the help of a web with RFID card method that works if students want absnce only show a card at a time, and their names will be entered into the database are arranged neatly presence and sequence so that it can be easily searched.

2.2 Study Overview

2.2.1 Definition Radio Frequency Identification

According Orlovsky (2005) RFID (Radio Frequency Identification) was first used during the 1980s. Along with the development of technology, the RFID technology itself was also developed that will use RFID can be used for everyday life. Radio Frequency Identification (RFID) or Radio Frequency Identification is an identification method by means of the so-called RFID tags or transponders to store and retrieve data remotely. which can replace the barcode system that is generally still widely used in companies or stores that sell retail, with the use of RFID, the company offered a number of advantages that can enable customers and enterprises to conduct business interactions, so that service quality can be improved as much as possible.

RFID (Radio Frequency Identification) is an identification technology that is flexible, easy to use, and is suitable for automatic operation. RFID combines the advantages that are not available on other identification technology. RFID can be provided in a device as read-only (read only) or can be read and written (read / write), it does not require direct contact or path of the light to be operable, it can function in a wide variety of environmental conditions, and provide a level of data integrity high, and difficult to counterfeit, so that RFID can provide a high level of security. RFID can perform automatic control for many things. The manufacturing sector, retail, library, logistics, supply chain and medical technology has been widely applied this information system. Some hospitals in the world has successfully implemented RFID technology in the search area of the patient, medical staff, medical equipment and other application areas.

RFID systems offer increased efficiency in inventory management (inventory control), logistics and supply chain management (supply chain management). RFID can also be used by retailers as the technology equipment to track (tracking) and smart labels embedded in the sensors transmitting and intelligent reader to transmit information on the key areas where consumers live and work for a data processing system.

2.2.2 Understanding System

According to Tata Sutabri (2012: 22), the system is a form of integration between the components with other components for the system have different goals for each individual case in the system.

2.2.3 Understanding Systems Analysis

According Jogiyanto(1999) analysis of the system is intact information system into its component parts with a view to identify and evaluate the problems, opportunities, barriers that occur and the expected needs so that it can be proposed improvement.

2.2.4 Understanding Website

Hidayat (2010: 6) website is a whole web pages contained in a domain that contains the information. A website customarily built on many web pages that are interconnected. So we can say that, the notion of a website is a collection of pages. Display used for text information, still or motion picture, animation, sound, or a combination of these, whether they are static or dynamic that formed a series of interconnected buildings, each of which is connected to the networks of the page. The relationship between the one-page website with pages of other websites referred to by hyperlink, while the text which is used as a media liaison called hypertext.

3. Results Analysis And Discussion

3.1 "Attendance Class Attendance System Design Using Radio Frequency Identification (RFID) At the University Computer Indonesia" written by Eko Budi Setiawan, Bobi Kurniawan, Vol.1, No. 2, ISSN: 2460-738X, December 2015. University Computer Indonesia.

1. The result of the application of this journal is very helpful in every absence students and can facilitate the attendance simply by tapping an RFID card is absent already entered into the database so that the system will be automatically arranged neatly absent.
2. Discussion
A. Below is the functionality provided by the system:
    1. server-based systems
    2. Datalecture realtime
    3. system receives only a 15-minute card tapping
    4. lecture data stored on the server
    5. Each lecture should already stated in room scheduled.
B. Device hard from the server:
    1. Processor Intel Pentium 4 1.6 GHz
    2. RAM 1 GB
    3. HDD 40 GB
    4. Mouse
    5. RFID Reader
    6. Barcode Absent
    7. LAN Card and Switch
C. Device software of the system
    1. System operation was using windows 8
    2. Microsoft Visual Basic
    3. DBMS using MySQL
    4. Microsoft Office

Applications attendance system lecture in UNIKOM based RFID will be interconnected among all client computers in every classroom lectures with computer server as a data center class schedules. The flow of the use of the attendance system: Secretariat Program will input all lecture schedules at the beginning of the semester. Lecture schedules required in the attendance system that is the name of the lecturer, course name, class lectures and syllabus of lectures. Lecture schedule data entered by each study program secretariat will be stored into the database server RFID attendance system.

When the lecture schedule data has not been entered, then the lecturers and students can not perform charging lecture attendance in classes using RFID attendance system. After lecturer for class to begin the lecture will be followed by tapping an RFID card lecturer concerned to the RFID reader available in Box Dispenser class system will read RFID cards lecturer and will display on the screen of the subjects and classroom courses that will be activated for the absences. Course information and class subjects that will be displayed on the monitor screen attendance system only in accordance with the implementation of a lecture class where the input by the secretariat Program. Lecturers will then select a class. classroom lectures and discussion material to be activated by using the process of absences Mouse is available in each box dispenser system each class attendance.

After the lecture and classroom lectures activated by the lecturer, then each student must make the process of tapping into the RFID reader that are perceived to attend the class. After 15 minutes since the attendance system is activated by a lecturer, then the application will automatically be switched off, so it can not be used for reading RFID again. Attendance data is automatically sent from the client computer to the server computer. In computer existing attendance data server will periodically every day are imported into the database online attendance system in trusteeship.
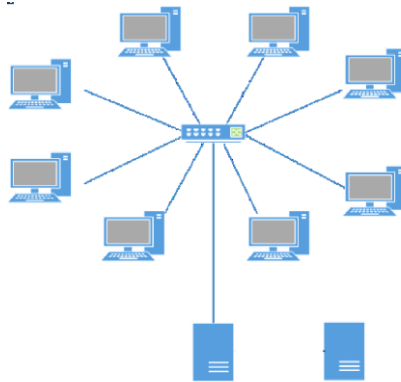
Figure 1. System Architecture Design

3.1.1 "Design of Information Systems Applications Using Radio Employee Attendance Frequencyi Identification (RFID) at PT. Skyputra Pancasurya "written by Aris, Ikhsan Mubarak, Windy Yuliardi, Ageng Ramadan, Angga Permana, ISSN: 2302-3805, 6-8 February 2015, PT. Skyputra Pancasurya.

1. Results

By using a computerized attendance system is easier, because the system is in use is not difficult to simply use the card and the time spent in attendance faster does not have to look for the name of each student.
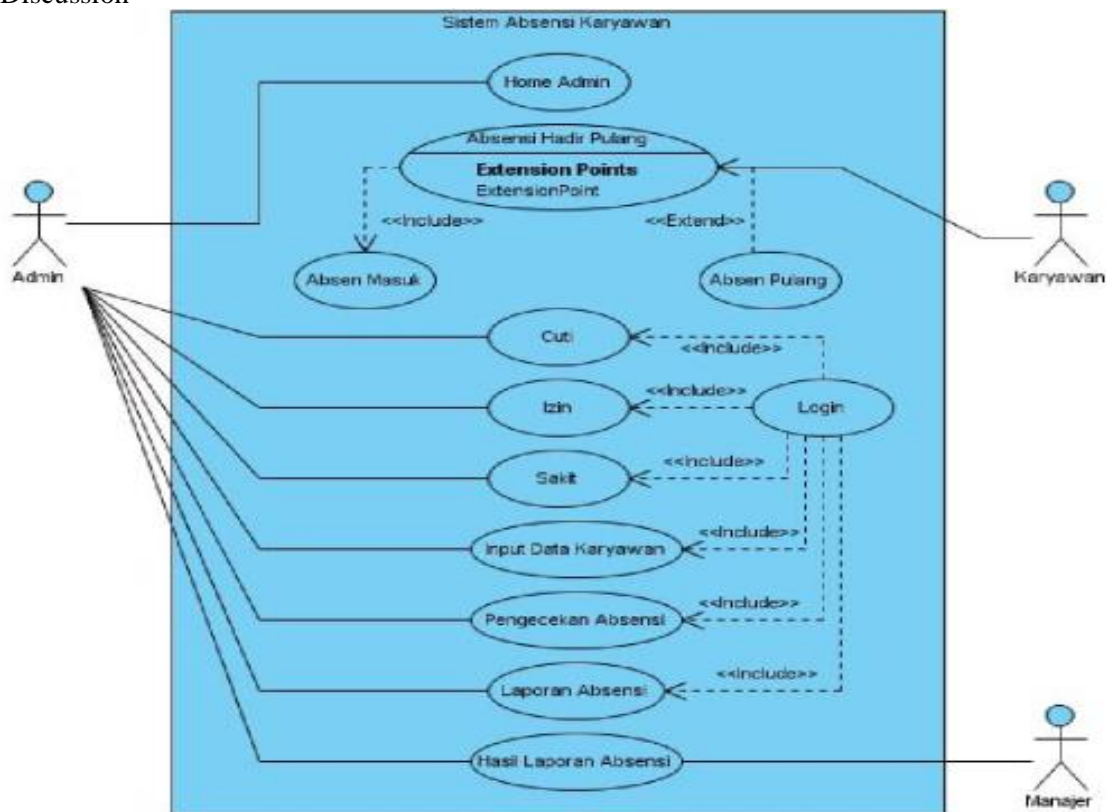
2. Discussion

Figure 2 Diagram Employee Attendance System Design

To enter and view the menu display employee data, it must first login, if login correctly then it will go to the home's absence and if it fails then it will go back to the login screen. When logged in successfully going into the home and then go to the absent employee's data and select the menu available to enter the data of employees, and will show a form to fill out employee data, if completed

form filled in and save. When the data is filled is complete and correct the data has been input, if the data is incomplete and does not fill properly then there will be a warning wrong data and employee data back to the menu. When he wants to edit and delete the data added was equal to the employee. If the process is complete, the admin can logout to exit the system. To enter and view the menu display absent employee data which is not present, then it must first login, if login correctly then it will go to the home's absence and if it fails then it will go back to the login screen.

When logged in successfully going into the home and then go to the menu absent absence employee data that is not present, to populate the data of employees who were not present to confirm the permission, sick or on leave. If the employee data that is not present already confirmed with permission, sick or on leave. Admin logout to complete the process and out of the system of employee absences. To enter and see the view menu office employee data which is not present, then it must first login, if login correctly then it will go to the home's absence and if it fails then it will go back to the login screen. When logged in successfully going into the home and then go to the absent positions. If you want to add positions must enter the office who want to be added and if you want to delete immediately delete the table provided. If completed admin can logout to exit system employees. To enter and view the attendance report menu display employee data which is not present, then it must first login, if login correctly then it will go to the home's absence and if it fails then it will go back to the login screen. When logged in successfully going into the home and then go to the menu absent attendance report to view and print reports. If the attendance report had printed admin can log out of the system of employee absences. describes the sequence diagram for attendance. Admin can enter the home admin to login and enter your username and password to be validated by the server if the username and password that is used correctly, if true then the admin can get into a home absent and if it fails, or any of the admin back again to login. When the login is correct eating will perform home attendance and then if employees are sick admin can choose of illness to the employee, if the employee permission then the admin can choose the license information to employees, and if employees leave the admin can choose captions on leave for employees. describes the sequence diagram for checking attendance.

Admin can enter the home admin to login and enter your username and password to be validated by the server if the username and password that is used correctly, if true then the admin can get into a home absent and if it fails, or any of the admin back again to login. When the login is correct eating will perform home attendance and then can choose to check the employee checking absenteeism. describes the sequence diagram for employee data input. Admin can enter the home admin to login and enter your username and password to be validated by the server if the username and password that is used correctly, if true then the admin can get into a home absent and if it fails, or any of the admin back again to login. When the login is correct eating will perform home attendance and then can perform data input and fill out the appropriate employee data. describes the sequence diagram for the report absences. Admin can enter the home admin to login and enter your username and password to be validated by the server if the username and password that is used correctly, if true then the admin can get into a home absent and if it fails, or any of the admin back again to login. When the login is correct eating will perform home attendance and then can check also see the attendance report. Admin can then print the attendance report.

3.1.2 *"Checking Attendance Framework For Online understudies In Classroom Utilizing Radio Frequency Identification technology, SVS Institute of Technology Warangal, TS, India" written by Ganddam Jyothi, Kola Sridhar, Reddem Ramakrishna, Gujjala Rakesh, Raveena, 66-69, March 2016 . SVS Institute of Technology Warangal, India.*

3.2 *In the computerized system is the name of the student to be searched directly found because the names of students who attend and sign database them in recording attendance later lecturer does not need to recap attendance back*

3.2.1 *Discussion on*

RFID (Radio Frequency Identification) is an innovation that uses wave radio for the exchange of information from the tag called electronic tags or join into an electronic card. Interface to the journal are:

A.   Transaction System

Module provides an overview of transactions which the operations of a system, which is illustrated by the interface, and then implemented in the way its consumer with RFID cards, with the attendance system is easier because save absences any time and the system directly into the system database.
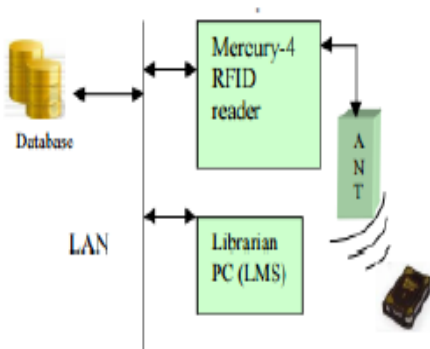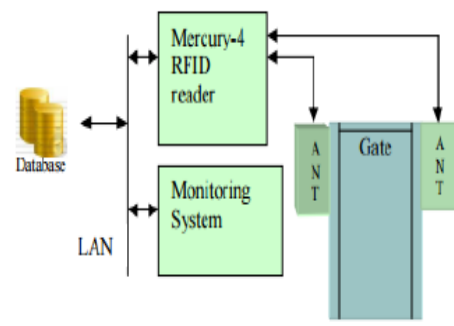

Figure 3 Transaction System

Figure 4. Monitoring System

B. Monitoring System

This system monitors how the system of tapping the card and then the process absent monitored by the system, so the system can be monitored, after the students tapping card then their name automatically entered into the form's presence and entered into the database system as directly,

C. System Link

Link System is a system that requires a connection, an internet network because the system is web-based, so it must be connected to the internet, so that data can be entered into the system database.
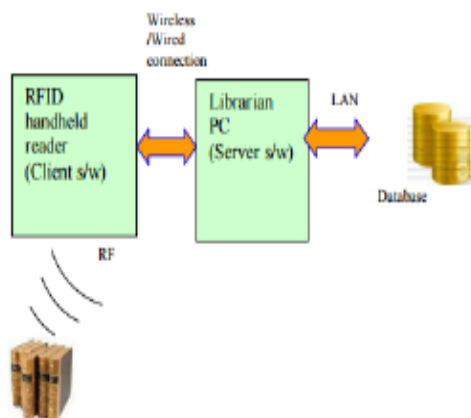

Figure 6. System Architecture
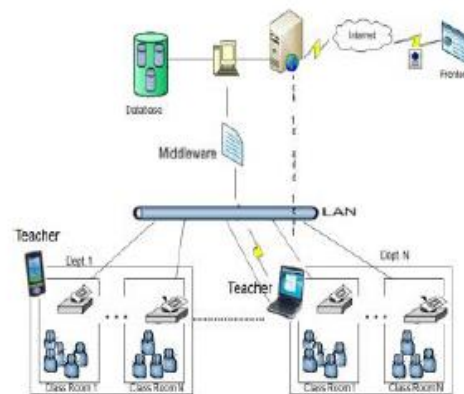
Figure 5. The Connection

Each classroom must installed RFID reader with Internet network connection and system the date, day and time to go to college after tapping student RFID cards, hence their name already entered into system database automatically, with this system save costs.

3.3 "Implementation Of Attendance System based on RFID and GSM with respect to power saving concept, Gujarat Technology University, India" written by Darshankumur Dalwadi, Insiya Guriwala, Shiwangi Chaudhary, Bmiloni Kapadia and Megha Savalia, E-ISSN 2277 - 4106, Vol.6, No.2, April 5, 2016. Gunjarat Technology University, India.

3.3.1 Results

In this computerized attendance system journal on this journal to get a little extra, if each student has been absent then they get messages parents that their children have to attend classes or lessons.

.3.2 Discussion

In this paper discusses the RFID-based attendance system with the concept of time-saving and cost-effective expenditure, with this system by showing the student only RFID card only, the system will automatically scan the card system is easily accessible to students, faculty and staff. The system also no excess if students are already tapping an RFID card then their parents get the message that their children are following learning activities.

A. Settling System The

system uses a new method that is the RFID system, this method can facilitate consumer, RFID is also called a tag reader which means the tag is the id number that is unique while the reader is a system for reading RFID tags in a way, RFID card shown to the RFID reader so that the card can scan because each card has a different id so no cheating in absent system.

B. System Block Diagram

RFID reader is a low cost method and its use is quite easy just by showing the code id RFID cards will scan the card and every student who has been absent so parents get a reply messages, told us the child they are following the process of learning.
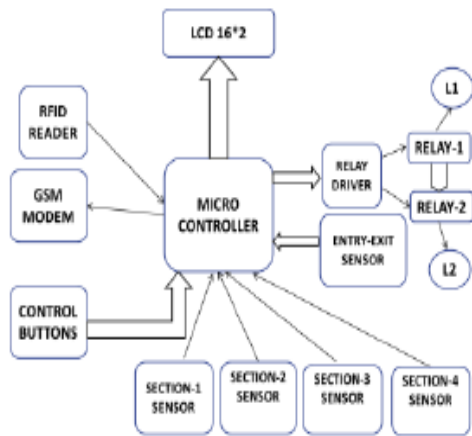

Figure 7. System Block Diagram

Figure 8. Flow Graph

C. System Flow Graph

round button on the image will be suppressed as a sign that the course will begin, after which students will put into RFID card reader for the cards to barcode, using this system can make it easier for humans. An attendance system smart classroom introduced in project this as an important part of the system of Management campus, the system can complete the list of attendance of students, the system automatically analyze and process the data collected and the system is also implementing a notification messages at the same time , this system has advantages, such as reducing paper, saving time and this system includes the latest system.

Table 1. Advantages and Disadvantages of Each Journal

No.	Journal of	Methods	Advantages	Disadvantages
1.	Designing lecture attendance attendance system using radio frequency identification (RFID) in Indonesian Computer University	(Rfid)	Using the attendance system computeritation student names are easier to find in the search.	In this journal sick and permission forms are not made so that if there are students who are ill or permission are considered absent.

2.	Design of information system applications absenteeism by using identification frequency radio (RFID) in pt. Skyputra pancasurya.	(Rfid)	system is in absence sooner not have to search each students name.	No
3.	Attendance framework for online checking understudies in classroom utilizing radio frequency indetification technology, SVS institute of tecnology Warangal, ts, india.	(Rfid)	system is directly entered into the database so that at the end of the course does not need to recap the presence on each student.	No
4.	Implementation of attendance system based on RFID and GSM with respect to power saving concept, technology gujarat university, india.	(Rfid)	This journal has its own advantages when it is absent using RFID cards, each student got a shipment sms to parents of students in each.	There is no.

4. Conclusions and Recommendations

4.1 Conclusions

Based on the four journals used by the authors that the computerized attendance system is more effective and more efficient because these systems do not have to search for the name of each student but only show the card. Then the card will barcode by the system, this system can save time because it does not have to look for the names of each student, not a waste of paper (paperless), can save costs and with this system can facilitate a lecturer in student attendance system.

4.2 Suggestion

to the author in this journal, the expected development of this system can be realized for using this system would be more petrified students and lecturers.

<div align="center">References</div>

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