STUDENT ATTENDANCE DATA PROCESSING APPLICATIONS USING RFID IN AL-ISHLAH MTS BOBOS

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ABSTRACT

MTs or Madrasah Tsanawiyah is one of educational institutions that have same level with junior high school. One of MTs is MTs Al-Ishlah housed in Kabupaten Cirebon, especially at Desa Bobos. Existing staff within the organizational structure of MTs Al-Ishlah Bobos include the administration and teachers whose job is to collect data on attendance.

Application is a collection of command programs designed to perform specific tasks (specifically). Attendance data processing application development aims to facilitate the processing of data in the presence of MTs Al-Ishlah Bobos. Attendance data processing applications that built has some RFID features to make the process of attendance.

Conclusions from the data processing application development is the presence of these applications can facilitate staff make student attendance data summary, this application can facilitate teachers get student attendance information, the application can avoid data entry errors attendance by staff and teachers, and these applications can avoid mistakes in doing attendance.

***Keywords**: MTs, Al-Ishlah, Bobos, Applications, Processing, Data, Attendance, students, RFID.*

1. PREFACE

1.1 Background Issues

MTs or Madrasah Tsanawiyah is one of educational institutions that have same level with junior high school. One of MTs is MTs Al-Ishlah housed in Kabupaten Cirebon, especially at Desa Bobos. Existing staff within the organizational structure of MTs Al-Ishlah Bobos include the administration and teachers whose job is to collect data on attendance.

Attendance is the process of recording attendance of students participating in learning activities at school. Process attendance at MTs Al-Ishlah Bobos are still using books student attendance by calling one by one during the learning process is ongoing, and the book was completed, absences will be recapitulated by administrative staff to be used as data to be stored. As a result, the attendance is less effective if every school day takes place every teacher concerned should consult the student's presence before the learning takes place and the administrative staff have approached every class and record attendance. As well as student attendance data if needed, administrative staff must check book attendance every class. Students whose attendance every school day did sometimes have obstacles, one of which is the absence of data that should be written, but missed so students are considered absent.

Based on the description of the research problems that will be done is to build students' attendance data processing applications. By using RFID technology is expected to facilitate student attendance accurately perform.

1.2 Problem Formulation

Based on the background of the issues that have been described so formulated the problem of how to build a data processing applications use RFID attendance at MTs Al-Ishlah Bobos.

1.3 Purpose and Objectives

Based on the problems studied, the purpose of this thesis is to build a data processing applications use RFID attendance at MTs Al-Ishlah Bobos.

The expected goals of the development of data processing applications attendance were:

1. *Facilitates staff make student attendance data summary.*

2. *Facilitate teacher get student attendance information.*
3. *Avoid data entry errors by staff and teachers attendance.*
4. *Avoid mistakes in doing attendance.*

1.4 Limitation Problem

Some limits on development issues of data processing applications use RFID attendance at MTs Al-Ishlah Bobos are as follows:

1. *The processed data on student attendance data processing applications using RFID at MTs Al-Ishlah Bobos are student data, RFID data, teacher data, student attendance data and daily during hours of learning will take place.*
2. *The process that occurs in processing applications built was student data, student attendance data processing, information processing student absenteeism, and processing of RFID data.*
3. *The resulting output contains information on students and student attendance information along with reports that can be printed.*
4. *If students are late, then the student will get a description of delay.*
5. *Applications built is based on client-server.*
6. *The software used to build this application is to use Delphi and uses the MySQL DBMS.*
7. *RFID (Radio Frequency Identification) is used only in the low frequency band or band LF (Low Frequency) RFID using ID type 12 are working at a frequency of 125-134 kHz with the use of short-range, roughly equal to 12 cm.*
8. *RFID Tag cards given to students who have enrolled in the system.*
9. *Analysis of the development of the software used is a structured analysis.*

1.5 Research Methodology

The research methodology used in data processing applications use RFID attendance at MTs Al-Ishlah Bobos is a descriptive analysis methodology that describes the facts and information in a systematic, factual, and accurate. The methodology of this study has two research methods is the method of data collection and methods of software development.

a. Data Collection Methods

Data collection methods used in this study is as follows:

a.1 Literature

Data collection was done by studying, researching, and studying the literature of library sourced from books, journals, websites and other reading-related research conducted.

a.2 Observation

Observation is a data collection techniques by means of direct observations. Observations conducted on the use of data processing applications use RFID attendance at MTs Al-Ishlah Bobos.

a.3 Interview

An interview is a data collection technique to conduct a discussion or consultation with the school directly to the problem under study. To determine the use of data processing applications use RFID attendance at MTs Al-Ishlah Bobos then conducted interviews with administrative staff as users of the application.

b. Software Development Methods

Software development methods are used to build data processing applications use RFID attendance at MTs Al-Ishlah Bobos waterfall model, which includes several processes such as [2]:

a. *Requirements definition*

This stage is the service, constraints and objectives of the system are made by consulting with the system users. This is defined in detail and shown as a specification of the system.

b. *System and software design*

Stage of the system design process divides the system needs software and hardware. It is building the entire system architecture. Design and implement software includes identification of basic software system abstrasi and connectedness.

c. *Implementation and unit testing*

This stage is a stage of software design to be realized as a set of programs or program units. Unit testing includes verification that each unit meets its specifications.

d. *Integration and system testing*

Phase individual program units are combined (integrated) and tested (tested) as a complete system to ensure that the needs of the software has been fullest. After testing, the system software on the customer desampaikan. The result should be strictly in accordance with predefined requirements.

e. *Operation and maintenance*

The final stage is the stage where typically the longest stage in the lifecycle. The system is installed and used in practical. Maintenance includes fixes an unknown error in the earlier stages, improving implementation of the system unit and improve the service system when there is a new
requirement.

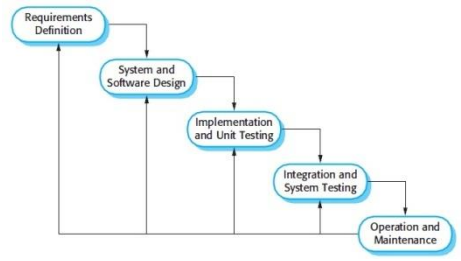


Figure 1 Waterfall Model [2]

2. LITERATUR REVIEW

2.1 Overview Institute

Growth Boarding usually begins with teaching activities, followed by citizens of the surrounding communities. Boarding School Al-Ishlah Bobos, stems from work done by Kyai Adroi in 1854, built a mosque in the village of Bobos, filled with Islamic teaching activities for the surrounding community. According to genealogy Kyai Adroi still have blood ties to the Sultan Hasanuddin Sharif Hidayatullah son of a preacher known as the propagator of Islam in West Java. Kyai Adroi dating Bobos in order to spread the religion of Islam, he comes from the village of District Cilimus Brass Scales (interview with Kh. Masduki MZ, 10-08-1995). Up to the year 1920 which took the form of Islamic education in Bobos still shaped Ta'lim Majlis. Bobos community development through the recitation was followed by his son after the death of Kyai Adroi, Kyai named Idris. KH. Ahmad Syujai (son of Kyai Idris) is responsible for teaching activities in the second period. Majlis Ta'lim progressing with the arrival of the students who live (mole) to learn Islamic knowledge, then the name of the boarding school diberilah Tholibin.

KH.Ahmad Syujai is a broad minded and are moderate. This is evident from the results that have didikannya progress in the development of Islamic education in the community. One of them is KH. Abdul Halim (the founders PUI) which is not only as the man who developed the school, but also pioneered the Modern Islamic Institutions in the form of skills in Majalengka Madrasah (S. Wanta, 1991:3).

3. SYSTEM ANALYSIS AND DESIGN

3.1 Analysis Database

ERD is a way of organizing the data on which the chart will show the entity relationships contained in the ER system proposed for the system will be built.

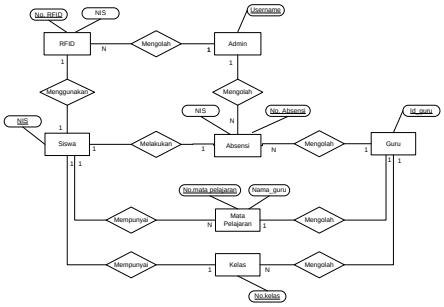


Figure 2 Diagram ER Data Processing Applications Using RFID Student Attendance at MTs Al-Ishlah Bobos

3.2 DFD

Context diagram is a diagram illustrating generally the inputs, processes and outputs that occur in a system.

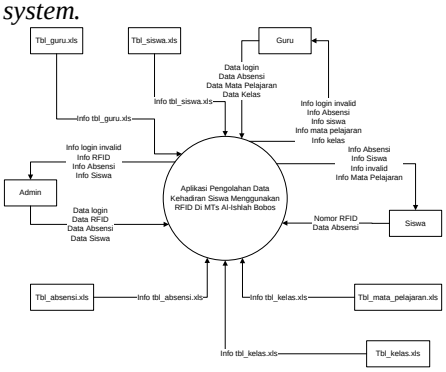


Figure 3 Diagram Context Data Processing Applications Using RFID Student Attendance at MTs Al-Ishlah Bobos

Data Flow Diagram is a medium that is used to describe the flow of data flows in an application. In the Data Flow Diagrams (DFD) consists of external entities, data

flows, processes, and data storage.

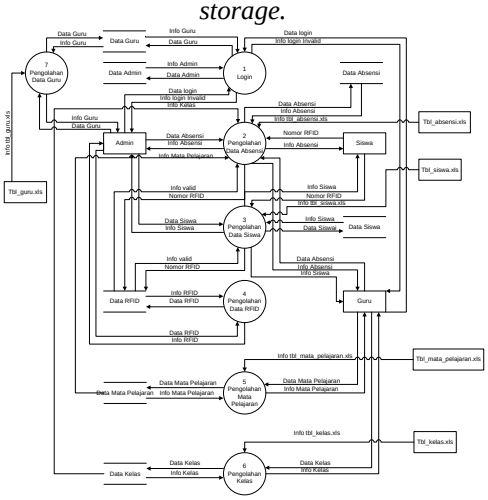


Figure 4 DFD Level 1 Student Attendance Data Processing Applications Using RFID at MTs Al-Ishlah Bobos

3.3 Relation Schema

The data model is the relational data model in which the relationships between data, meaning the data and limitations described in rows and columns. Formally it all to be described in relation schema and schema diagram.

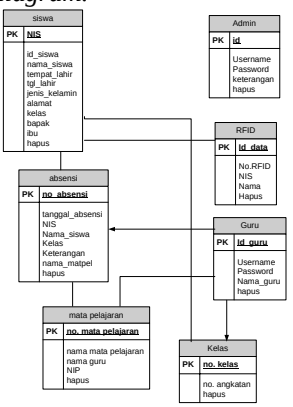


Figure 5 Relationship Diagram

3.4 Design of Structure Menu

The structure is designed in accordance with the level menu system users. There are three users of these applications are visitors, students, and admin. The menu structure is as follows:

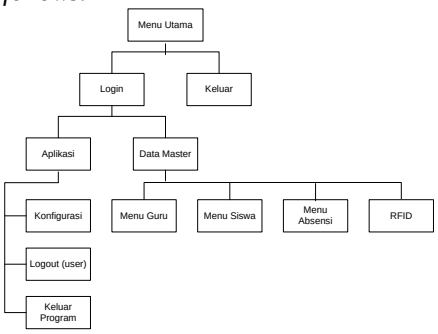


Figure 6 Design of structures Admin

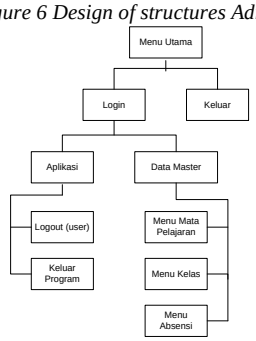


Figure 7 The design of the menu structure of teachers

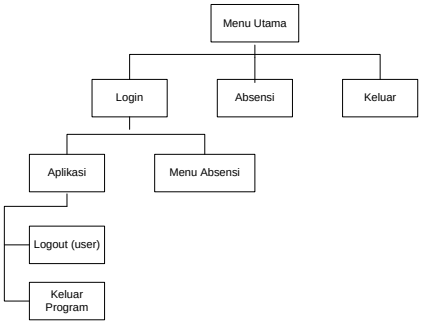


Figure 8 Design student menu structure

4. IMPLEMENTATION AND TESTING

4.1 Implementation

The level of system implementation is to translate the plan, based on the results of the analysis in a language that is understandable by machines as well as application software in a real situation. To support applications that will be applied in the sphere of implementation, then in this case using the hardware and software support in developing data processing applications using RFID student attendance at MTs Al-reconciliation Bobos.

4.2 Hardware Requirement

The hardware required to implement data processing application software using

RFID attendance at MTs Al-Ishlah, are as follows:

a) Processor with a speed of at least 2 GHz + Motherboard
b) at least 80 GB of hard drive capacity
c) at least 1 GB RAM
d) a minimum of 128 MB VGA Card monitor
e) Printer
f) Seven of RFID Reader
g) RFID Tag (according to the number of students)
h) Tseven mouse / keyboard

4.3 Software Requirement

Perangkat lunak yang digunakan untuk mengimplementasikan sistem adalah, sebagai berikut:

a) *Windows 7 sebagai sistem operasi.*
b) *Borland Delphi*
c) *MySQL sebagai DBMS*
d) *XAMPP*

4.4 Testing Conclusion

1. The application is easy to learn and use.
2. This application makes it easy to get the attendance data.
3. This application provides accurate data.
4. This application makes it easy to perform absenteeism.
5. These applications can reduce errors in the process of attendance.
6. This application can speed up the process of absenteeism.

5. CONCLUSION AND SUGGESTION

5.1 Conclusion

Based on the results obtained in the research and preparation of this thesis as well adapted to its purpose, it could be concluded as follows:

1. This application can facilitate staff make student attendance data summary.
2. This application can be easier for teachers to get student attendance information.
3. This application can avoid data entry errors by staff and teachers attendance.
4. This application can avoid mistakes in doing attendance.

5.2 Suggestion

For the development of this application, there are some suggestions that can be put forward, namely:

1. Applications built still have a very simple user interface, so it can be better developed.
2. It would be better if the student attendance data processing applications is directly connected to the E-Learning, so that the data can be directly obtained by the presence of siwa anywhere.
3. RFID tool still uses a low frequency band, if need be using the high frequency band in order to better respond well.

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