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Security system development for vehicle using the method of “mail notification” at villa Rizki Ilhami Tangerang residential

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Abstract. Along with the growing number of crimes lately in the housing unit, we need a system that can help the security of housing in minimizing the crime rates of motor vehicle theft. By having the vehicle data system both incoming and outgoing as well as the information received by the residents of the house through a personal email will automatically create a sense of security to the inhabitants. If you just rely on humans will not be able to remember all the vehicles out into the housing unit. By making the application system Security System Web-based vehicles through Method "Mail Notification" will be very useful. Every vehicle which will enter the housing unit, will be recorded the date and time, also the entry and exit as well, then a notice will be informed to the residents that there will be a guest of the occupant. All data will be stored in the database, if necessary, it can be taken at any time. If you need the data, administrators just enter the date and time which you want to get from the database. This software uses V3.0.12 Xampp and MySQL database used 5.5.25a. The implementing of this software will greatly help in finding the perpetrators who use motor vehicles. Because every vehicle that passes will always be recorded and stored into the database. The data can be viewed at any time if necessary for the investigation to find the perpetrators of crimes.

1. Introduction

Nowadays, the high rate of crime, especially theft often happens in the housing area made security is absolutely needed. Human's activities are getting crowded in the era of information technology, so that they do not have time to do it by themselves. Therefore, it needs a security system device with a form of collection vehicles that can maintain security every time even to protect privacy in assets and disposal. By using the application of the security system, it is expected that it can provide a sense of security and comfort. In addition to the course, by using the application of the safety system can reduce the number of crimes that occur in the community, especially the crime of theft in the housing area.

Due to the increasingly rapid of human mobility as a result of the activities that they do in the current era of globalization, it makes them require a security technology that has the characteristics of



information technology, namely in obtaining or accessing information using an easy, fast and does not interfere with the activities of housing occupants. During this, they only rely on human security. While human abilities are limited. Humans would find it difficult to remember all the vehicles out of the housing. So that it is needed a tool to log every vehicle out of the housing area.

Based on this it is possible to create a software for an integrated security system using a computer, so it can really help a person both on cost and time efficiency in monitoring the vehicles out of the housing. Such software can be created with the programming language WEB in combination with Push E-mail. The program was applied to create a security system that can work with data such as dates get out of the vehicle, ID and no police vehicles that pass through the entrance and the exit, by giving notice via e-mail destination homeowner.

2. Literature Review

An appropriate system will have a positive impact for a company in achieving the goals and objectives of the company. System is a component which has interconnected each other and relate them work together to achieve a certain goal ^[1].

According to ^[2], UML (Unified Modeling Language) is a standard specification language used to document, specify and build software.

UML is a float methodology in object-oriented systems and also a tool to support the development of the system. Based on some of the above opinion it can be concluded UML (Unified Modeling Language) is a modeling language used to design and software systems documenting.

According to ^[3] PHP or PHP Hypertext Preprocessor is a programming language that enabled to build a dynamic website. PHP integrates with HTML code, means different conditions. HTML is used as the foundation of a frame builder or web layout, while the PHP function as the process so that with PHP, the web will be very easy-maintenance. PHP runs on the server side so that PHP is also known as Server Side Scripting languages. This means that in any / to run PHP, required the web server. PHP is an open source which can be used free of charge and is able to cross-platform, which can run on Windows or Linux operating system.

According ^[4], e-mail is a letter delivered via an electronic device called Computer. Because this email using the Internet network, the address was also customize the email providers on the internet. Examples of email service provider is <http://www.mail.yahoo.com>, <http://www.mail.google.com>, etc. Push notifications fall into the category of internet communication model, based on the way publish / subscription client does not have to approve or requesting from the central server to get information. Unlike traditional scenario (pull) in which the client must be requesting every time you want to get information from public sistem. Generally, push notification is sent via Push Notification Service (PNS) specific to each platform: such as the Apple Push Notification Service (APNs) to Apple, Google Cloud Message (GCM) for Android, and Microsoft Push Notification Service (MPNS) for Windows Phone. However, the algorithm for each PNSsama ^[5].

3. Methods

3.1. Types of Research

In the preparation of this paper will apply the theory of information system development using the waterfall model of system development. The waterfall model is a system that performed the work in sequence or linear. This design has four steps: Analysis, Design, Code and Test. As this study was conducted to determine how big influence on vehicle security system outgoing and incoming on housing Villa Rizki Ilhami Tangerang

3.2. Method of collecting data

Data collection methods used by the author to obtain data as study materials in writing. In this case, the author uses the method of data collection in the form of primary data sources (observation, interview and observation systems) and secondary data sources (documentation).

a. Interview

Conducting interviews with Villa Rizki Ilhami Tangerang security leader and RW Mr. Anwar M Saleh, to obtain information on the entry and exit of vehicles on the housing area.

b. Observation

Perform direct observation and recording of incoming and outgoing vehicles in Housing Villa Rizki Ilhami Tangerang ongoing at this time.

c. Library Studies

Literature study done by reading, quote and make a note that originates in the library materials that support and security-related vehicle on housing. Furthermore, by studying and understanding the system related to the issues to be discussed in this thesis. It is intended that the author has a strong theoretical foundation in drawing conclusions.

3.3. Method of Analysis and Design

3.3.1. Analysis Methods. The analytical method used in this study using the approach Object Oriented Analysis (OOA) or Object Oriented Analysis with UML. The analysis process carried out on the results of the data collection stage with interviews, observation, and literature to obtain the system requirements specification will be developed. In the process of analysis, technical analysis undertaken are:

a. Data analysis and information systems running. The analysis was conducted of the procedures, documents, files, and a printout of the system that is already run.

b. Functional Needs Analysis, Non-Functional and User. Modeling of functional requirements to describe the function of the user's system involved and any functions that can be obtained by each user modeled with Usecase Diagram.

c. Behavior Analysis System. At this stage, an analysis of the behavior of a system developed and modeled with Activity Diagram and Sequence Diagram. Activity diagram to model Usecase process that runs in the system, while Sequence Diagram for modeling messaging (message) between the object and chronology.

3.3.2. Design Method. The design method used in this research method approach Object Oriented Design (OOD) or Oriented Design. Objects using Unified Modeling Language (UML). In the engineering design process undertaken are:

a. Static structural design program or system specifications are modeled with Class Diagram.

b. User interface design includes designing Navigation, Form Input and Output Form.

c. Database Design to model data structures and relationships between data. Modeled by Entity-Relationship Diagram.

d. Design Infrastructure (hardware, software, and network)

3.3.3. Systems Development Method. For the development of software used in the system development method waterfall. The stages are carried out:

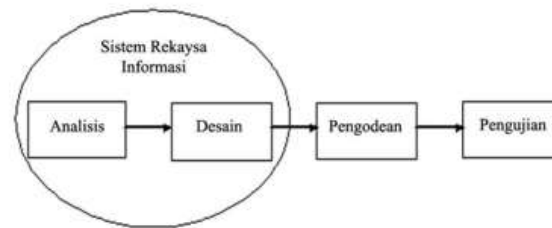


Figure 1. Waterfall Systems Development Method

a. Analysis

1. Analysis of Current System

The analysis process is ongoing at this time is a manual system in the form of the recording process incoming and outgoing vehicles using books in a note written by the security post.

2. Analysis of Existing Problems

Based on the analysis performed, the data collection system and data recapitulation of the vehicle entrance and exit in the residential villa rizki ilhami Tangerang ongoing at this time, it was found that the process in the system of data processing is still less than the maximum. It only uses a book that is written by a security in their post. The books could be any time is lost or damaged, then the lack of information that was obtained occupants of the house. If there will be the guest vehicles that enter into such housing area, and the last, the lack of an information system that could facilitate RW and RT to the maximum, fast, precise, accurate and efficient. From the previous explanation, the needs of the system as to what is really needed for the means of data collection incoming and outgoing vehicles in residential Villa Rizki Ilhami Tangerang.

b. Design

In the design of the vehicle information system incoming and out several proposals from the RW and RT are:

1. Build Heading Security system design facilitates the transaction data input incoming and outgoing vehicles.
2. Display information systems must be able to adjust (Responsive) use in the form of computer media.
3. Database Design custom with the needs will be proposed to make the information system incoming and outgoing vehicles.

c. Coding

In the design of information systems at the incoming and outgoing vehicles Housing Villa Rizki Ilhami Tangerang use:

1. Programming languages: Hypertext Preprocessor (PHP)
2. Database: MySQL
3. Design: Sublime Text

d. Testing

Tests carried out by the Security Pos system Housing Villa Rizki Ilhami Tangerang directly with the computer media.

e. Maintenance

Maintenance included in fixing errors that are not found at the time of development, implementation and operational costs by RT / RW.

3.3.4. System Testing Methods

System testing is needed to examine how far a system can run well. In this study, the test system is done using a blackbox testing. Blackbox testing in this test was used to observe the results of the execution through test data and the functional check of the software.

4. Analysis of Issue and Design System

4.1. Problem Analysis

Nowadays, the high rate of crime, especially theft often happens in the housing area made security is absolutely needed. Human's activities are getting crowded in the era of information technology, so that they do not have time to do it by themselves.

Based on this, it is possible to create a software for an integrated security system using a computer, so it can really help a person both on cost and time efficiency in monitoring the vehicles out of the housing. Such software can be created with the programming language WEB in combination with Push E-Mail. The program was applied to create a security system that can work with data such as dates get out of the vehicle, ID and no police vehicles that pass through the entrance and the exit, by giving notice via e-mail destination homeowner.

4.2. Draft System

System Vehicle Entrance and Exit in the proposed housing is a Web-based in order to provide security in noting the ease of incoming and outgoing vehicles and provide security and comfort for the occupants of the house with their method of "Mail Notifucation". Sistem has several processes before residents receive an email notification from security post housing.

4.3. Draft Database

4.3.1 Class Diagram

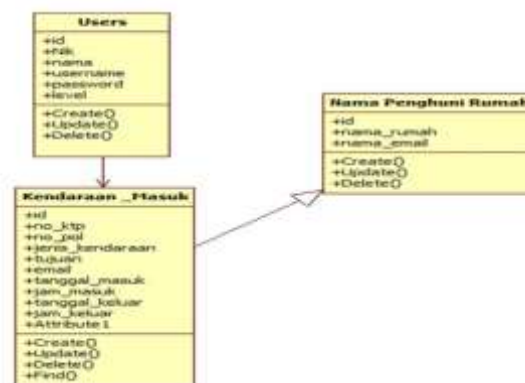


Figure 2. Class Diagram

4.3.2. Data Specifications

1. Users

Table 1. Explanation Class Diagram Users

No	Field	Type	Value
1	Id	Int	11
2	Nik	Varchar	5
3	Nama	Varchar	30
4	Username	Varchar	20
5	Password	Varchar	10
6	Level	Enum('admin')	

2. Kendaraan_Masuk

Table 1. Explanation Class Diagram Vehicle Sign

No	Field	Type	Value
1	Id	Int	11
2	No_Ktp	Varchar	16
3	No_Pol	Varchar	13
4	Jenis_Kendaraan	Varchar	5
5	Tujuan	Varchar	30
6	Tanggal_Masuk	Date	
7	Email	Varchar	20
8	Jam_Masuk	Time	
9	Tanggal_Keluar	Date	
10	Jam_Keluar	Time	

3. Nama_Penghuni_Rumah

Table 2. Explanation Class Diagram Residents Home

No	Field	Type	Value
1	Id	Int	11
2	Nama_Rumah	Varchar	30
3	Nama_Email	Varchar	20

4.4. Proposed Diagram Usecase

Usecase illustrates the flow of vehicle systems security program with the method mail notification on villa rizki ilhami Tangerang.

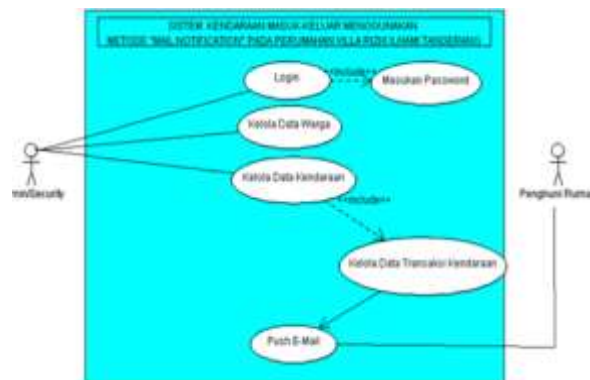


Figure 3. Usecase Diagram

5. Results and Discussion

This section describes the full-screen display on the vehicle system security application program using the mail notification on villa rizki ilhami Tangerang.

The initial view that will appear when the program is first run. And login with the admin.

5.1 Screenshots Main Form

Displaying main menu will appear when the user is logged on with admin. The main menu functions to display a list of menus that are in this application.

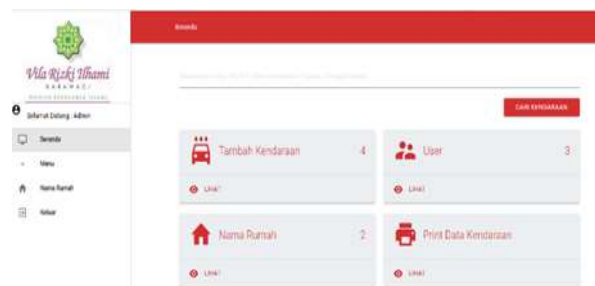


Figure 4. Main Screen Display Form

5.2 Form Display Submenu Vehicle Sign

Vehicle Log This menu serves to perform data processing incoming and outgoing vehicles in villa rizki ilhami.



Figure 5. Sub Display Form Vehicles Sign

5.3 Occupants Notification Form Display Houses

This notification form can be from personal email each residents who are already registered in the database security post, when security posts do if the vehicle data will be entered into the housing.



Figure 6. View Email Alert

6. Research Result

6.1 Conclusion

1. With a system of incoming and outgoing vehicle application is web-based, can facilitate the security of POS housing area to search the data coming and coming out of the housing area, because the current system is still done manually by recording in the books.
2. Residents will receive an alert that has been input and sent via email, which was registered through a system of POS Security Housing Area.
3. After testing by the method of "mail notification" makes residents feel more comfortable and safe because there is his method of "Mail Notification" on the application, which will send an e-mail information such as a vehicle or who will go and visit.

6.2 Suggestion

For further development of this system could be added with a tool such as a scanner to make it easier for the security of POS Housing area in doing input, process, output on the vehicle will enter or exit the housing.

7. References

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