ANDROID APPLICATION DEVELOPMENT USING GPS TECHNOLOGY AND ACCELEROMETER SENSOR TOSEE LOCATION AND DRIVING SPEED OF RENTAL CAR AT YOSHI TOUR AND CAR RENT

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ABSTRAK

Yoshi Tour is a company that pioneered the individual with the main business tour and travel services, car rental and tour packages mililiki commitment to advance the world of professional tourist transportation with service driver / tour leader best and newest fleet.
Based on the above issues, the Yoshi tour requires media to monitor driver performance in the line of duty, especially to determine the driving behavior of drivers such as knowing the driving speed, order to comply with traffic regulations, and knowledge of the route information. Through this study, the authors intend to provide solutions to the problems faced by the company Yoshi Tour is to build a system that can be used as a media supervision on the performance of the driver on duty.
The system will be built in the form of Android-based applications by utilizing GPS and Accelerometer sensor. GPS technology is used to determine the location and the road, so it can be used to help the driver know the location and service roads. Besides, the system will use the accelerometer sensor.
In support of this application, the purpose of each driver in the Arm smartphone comes with an accelerometer sensor which can be used to determine the speed of the car so that the tour Yoshi can control every time the car's position. As well as a mobile phone equipped with a GPS feature can add location information automatically, so the tour Yoshi safely knowing whether or not the presence of their vehicles.
KeyWords : *Accelerometer, Android, Gps*

1. PREFACE

Yoshi tour is a company that pioneered the individual with the main business tour and travel services, car rental and tour packages mililiki commitment to advance the world of professional tourist transportation with service driver / tour leader best and newest fleet.

In keeping with consumer satisfaction, Yoshi tours always puts the quality of services in order to Yoshi tour driver has always been a mainstay in tourist transportation in the city of Bandung. But in reality still many customers who complained Yoshi drivers car rent service, based on the interview with the manager Yoshi tour, average in one month there are 9 times the complaint. Most consumer complaints because they felt the way many things are not fun to do driver, such as bringing the car by reckless and high speed, violating traffic rules, and often get lost because they do not know the way. As a result, customers feel disappointed with the services provided, so that it can reduce the number of enterprise customers. Currently Yoshi tour yet have a medium or tool to monitor the driving behavior of the driver on duty.

Based on the above issues, the Yoshi tour requires media to monitor driver performance in the line of duty, especially to determine the driving behavior of drivers such as knowing the driving speed, order to comply with traffic regulations, and knowledge of the route information. Through this study, the authors intend to provide solutions to the problems faced by the company Yoshi Tour is to build a system that can be used as a media supervision on the performance of the driver on duty.

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The author plans to make the thesis entitled "Development of Android applications using GPS technology and Accelerometer Sensor and Location Aware Free For Driving Car Rental in Yoshi tour and Car Rent.

2. LITERATURE REVIEW

2.1 Scope of Research Object

Objek penelitian yang sedang diteliti adalah Yoshi yang bertempat di Jalan Terusan Jakarta Antapani Bandung.

2.1.1 Company History

Sebelum berdirinya Yoshi adalah sebuah perusahaan yang dirintis secara perorangan dengan usaha utama jasa tour and travel, rental mobil & bus. Memililiki komitmen untuk memajukan dunia transportasi wisata secara professional dengan *service driver* / *tour leader* terbaik dan armada terbaru karena untuk kepuasan konsumen adalah tujuan utama kami.

Dalam melakukan perniagaan, perusahaan kami memanfaatkan media tekhnologi informasi yang berkembang pesat di jaman modern saat ini. Pemanfaatan berbagai media sosial dan website menjadi salah satu media utama dalam perniagaan kami, sehingga dapat cepat di akses secara realtime mengetahui harga sewa dan semua jasa layanan yang kami berikan tanpa terbatas jarak tempuh dan waktu yang sangat berharga. untuk anda yang ingin menjadikan kami pilihan dalam perjalanan anda, Megatrans Indonesia adalah pilihan terbaik.

2.2 Theoretical basis

The theoretical basis to discuss the matter or any theory that is used as a reference in making this thesis. Described the theoretical basis is the result of a study of literature that is the collection of data by studying journals, browsing the Internet, reference books and other readings that are closely related to the research conducted.

2.2.1 Mobile applications

According Buyens mobile applications derived from the application and mobile. Application which means the implementation, application, and use. In terms of applications is a ready-made program designed to perform a function for the user or other applications and can be used by the intended target. While mobile can be defined as the movement from one place to another.

Then the mobile application can be defined for an application program that can be run or be used even if users move from one place to another and have a small size. This mobile application can be accessed via wireless devices, pagers, PDAs, cellular phones, smartphones, and similar devices.

2.2.1.1 Characteristics of Mobile Devices

The mobile device has many kinds in terms of size, design and layout, but they have very different characteristics from the desktop system.

The following characteristics of mobile devices, including:

1. The small size
   The mobile device has a small size. Consumers want the smallest devices for comfort and mobility
2. Memory is limited
   The mobile device also has a small memory, namely primary (RAM) and secondary (disk). This restriction is one of the factors that influenced the writing programs for various types of these devices. By limiting the number of memory, special considerations must be taken to maintain the use of an expensive resource limited process
3. mobile system that is not as tough as their desktop counterparts. Size, technology and cost are some of the factors that affect the status of these resources. Such as hard disk and RAM, you can find them in sizes that fits in a small package
4. Consume low power
   Mobile devices spend less power compared to a desktop machine. This device should save power because they run at a state where the power supplied is limited by batteries Strong and reliable
5. Because mobile devices are always brought anywhere, they must be strong enough to withstand collisions, movements, and occasional droplets of water
6. Connectivity Limited
   The mobile device has a low bandwidth, some of them even are not connected. Most of them use a wireless connection
7. Period short life
   These consumer devices start up in seconds, most of them at all times. Try to take the case of a mobile phone, their boots in seconds and most people do not turn off their mobile phones even when the evenings. PDA will light up if you press the power button them.

2.2.2 Information Systems

The system is a collection of components of the model equipment requirements, function and interface. Information Systems is a regular combination of any of the human resources, hardware, software, data, and network. The life cycle of a system covering:

1. Investigation
2. Analysis
3. Design
4. Implementation
5. Maintenance

2.2.3 Android

Android is a Linux-based operating system designed for touch screen mobile devices such as smart phones and tablet computers.

Android was originally developed by Android, Inc., with financial support from Google, which then bought it in 2005. The operating system was released officially in 2007, in conjunction with the establishment of the Open Handset Alliance, a consortium of companies hardware, software, and telecommunications that promotes open standards mobile devices. The first Android phone went on sale in October 2008. (google Inc.2014)

In this case why using android, because to complete the final project using applications based on android, android system menggukan this reason data from IDC (Smartphone Market Share in 2016) first position android users Most world.

2.2.3.1 Android Life Cycle

Android application consists of some basic functions such as editing a note, play music files, sound an alarm, or open the phone contacts. Those functions can be classified into four different android components as shown in the classification is based on the basic java classes used.

Table 2. 1 Android Application Components

Functionality	Java Base Class	Examples
Focused thing a user can do	Activity	Edit a note, play a game
Background process	Service	Play music, update weather icon
Receive messages	BroadcastReceiver	Trigger alarm upon event
Store and retrieve data	ContentProvider	Open a phone contact

Each application must have used at least one of these components, but there are some components that require lists specified permission before use as components Service, BroadcastReceiver. ContentProvider.

Android has other programming paradigms unlike regular programming paradigm in which applications are run on the main () function, android system running the code in the method Activity by applying a specific callback method that is appropriate to a particular stage of the life cycle. Any application that runs in android operating system has a different life cycle with a desktop application or web, This is because the mobile application has a level interrupt process fairly high as when handling incoming calls application are required to stop the process temporarily, Application life cycle also helps to ensure the application not depleting the battery power users.

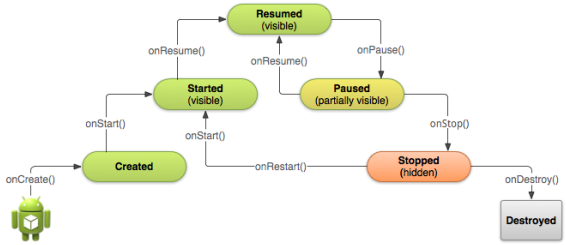


Image 2. 1 Lifecycle Android

There are several states in the life cycle android that occur as illustrated in the image lifecycle android 2.1 but only a few of those who become static state include.

The state that becomes a static include:

1. Resumed

   Resumed occur when the application runs after a paused state. This state will run the command program written in onResume method ()

2. Paused

In this state the activity that occurs temporarily suspended but is still visible to the user because there is a process that has a higher priority such as phone calls. Applications can not run any command or displaying anything in this state

3. Stopped

n these circumstances, the application really is not displayed and are not visible to the user but still leaving the service dibackground

State such as Created and Started temporary and the system quickly run the next state by calling the callback the next life cycle. That is, once the system OnCreate () is called, quickly the system will call the method OnStart (), followed by onResume ().

2.2.4 Web Service

W3C defines a Web service as a software application that can be identified by URI and has an interface that is defined, described and understood by XML or JSON and also supports direct interaction with a software application to another by using message-based XML or JSON over internet protocol Web service is a software application that is not affected by platform, providing those methods that can be accessed by the network. Web Service will also use XML to exchange data, especially on the two different business entities. Some characteristics of a web service is:

1. *Message-based*
2. *Standards-based*
3. *Programming languege independent*
4. *Flatform-neural*

   Several key standard in the web service is: JSON, XML, SOAP, WSDL and UDDI

2.2.5 JSON

JSON (JavaScript Object Notation) is a lightweight data interchange format, readable and writable by humans, as well as easily translated and

made (generated) by the computer. This format is based on part of the Programming Language JavaScript, Standard ECMA-262 3rd Edition - December 1999. JSON is a text format that is independent of any programming language because it uses a style that is commonly used by programmers family of C including C, C ++, C # , Java, JavaScript, Perl, Python etc. Because of these properties, making it ideal as a JSON data-exchange language.

2.2.6 Accelerometer

The accelerometer is a sensor / transducer that serves to measure acceleration, detecting and measuring vibrations, or to measure the acceleration due to gravity. In this study, the accelerometer is used as take value tilt angle of an object.

The accelerometer can also be used to measure the vibrations that occur in vehicles, buildings, machinery, and also can be used to measure the vibrations that occur in the earth, engine vibration, dynamic distance and speed with or without the influence of gravity.

Acceleration is a change of pace to the circumstances of the time. Increasing a rate in a range of time is also called acceleration (acceleration). If the velocity diminishing pace than previously, called deceleration. Acceleration is also dependent on the direction / orientation as a decrease in velocity is a vector quantity. Changing the direction of movement of an object will cause acceleration anyway.

2.2.6.1 Working Principle Accelerometer

The working principle of this transducer is based on the laws of physics that if a conductor is moved through a magnetic field, or if a magnetic field is moved through a conductor, then there will be a voltage is induced in the conductor. Accelerometer placed on the surface of the Earth can detect the acceleration of 1g (the size of the earth's gravity) at the point of the vertical, for the acceleration caused by the horizontal movement of the accelerometer will measure acceleration directly when moving horizontally. This is consistent with the type and the type of accelerometer sensor that is used for each different type of sensor in accordance with the specifications issued by the manufacturer. , Today almost all sensor / transducer accelerometer is already in digital form (not to the mechanical systems) so that the way it works only on the temperature that is processed digitally in a single chip.

2.2.7 GPS

GPS or Global Positioning System, a device or system that can be used to inform the user is located (globally) in satellite-based earth surface. Data sent from the satellite in the form of radio signals with digital data. Wherever your current position, the GPS can help show the way, as long as the sky is still visible. The GPS service is provided free of charge, do not even need to pay anything except buy GPS recierver-rya.

GPS was originally only used exclusively for military purposes, but in the 1980s could be used for civilian purposes. GPS can be used wherever also within 24 hours. The position of the GPS unit will be determined based on the points degrees of latitude and longitude coordinatesr.

2.2.7.1 Understanding GPS

According to (Winardi, 2006) is a system for determining the location on the earth's surface with the aid of alignment (synchronization) satellite signals. This system uses 24 satellites that transmit microwave signals to Earth. This signal is received by a receiver on the surface, and is used to determine the location, speed, direction and time. A similar system with GPS, among others, the Russian GLONASS, Galileo the European Union, IRNSS India.

GPS system, whose real name is NAVSTAR GPS (Navigation Satellite Timing and Ranging Global Positioning System), has three segments, namely: satellite, controller, and the receiver / user. GPS satellites orbiting the Earth, with a fixed orbit and position (coordinates sure), totaling 24 pieces in which 21 pieces of active work and the remaining 3 pieces is a backup.

To be able to know the position of a person it is necessary tool named GPS receiver which serves for receiving the signals from GPS satellites. Position change becomes a point known as the Way-point will be in the form of dots latitude and longitude coordinates of the position of a person or a location later in the display on the electronic map. Since 1980, GPS services that were once only for military leperluan began to open to the public. Interestingly, although these satellites cost hundreds of millions of dollars, but anyone can use it for free. (Andy, 2009).

These satellites orbit at an altitude of about 12,000 miles from the earth's surface. This position is ideal because the satellite can reach a wider coverage area. These satellites will always be a position that could reach all areas on the surface of the earth so as to minimize the occurrence of blank spots (areas not covered by the satellite). Each satellite is able to circumnavigate the globe in just 12 hours. Very quickly, so they can always reach wherever a person's position on the surface of the earth.

GPS receiver itself contains several integrated circuit (IC) technology is so cheap and easy to use by everyone. GPS can be used to withstand the various interests, such as cars, boats, aircraft, agriculture and integrated with a computer or laptop. Here are some examples of devices GPS receiver.

2.2.7.2 How it Works GPS

Each area of the earth's surface is covered by a minimum of 3-4 satellites. In practice, each of the latest GPS can receive up to 12 satellite channels at once. Clear sky condition and free from obstructions make can easily capture the GPS signal transmitted by the satellite. More and more satellites are received by GPS, the accuracy of which is given will also be higher.

How it works GPS logically there are 5 steps:

1. Using calculations "triangulation" from satellites.
2. For the calculation of "triangulation", GPS to measure distance using the travel time of radio signals.
3. To measure travel time, GPS requires require high timing accuracy.
4. For the calculation of distance, we need to know precisely the level of a position of the satellite and its orbit.
5. Lastly should menggoreksi delay signal travel time in the atmosphere until it is received receiver.

2.2.7.3 benefits of GPS

By using GPS, one can mark all the locations ever visit. There are many benefits that can be taken if someone knows a waypoint from somewhere. First, one can estimate the distance of the location to be addressed by the original location. Last output GPS users can estimate the distance to the destination, the estimated duration of the trip until the actual speed of the user that is being traveled. Second, the location on the mainland is quite easy to be recognized and identified. However, if someone by chance met a very good fishing spot in the middle of the ocean or the place look good sunset on the mountain top, how to mark those locations so that the person can return to the site later in the day without getting lost. At times like this that a GPS will show its benefits.

With GPS technology can be used for multiple purposes in accordance with its objectives. GPS can be used by researchers, sportsmen, farmers, soldiers, pilots, adventurers, hikers, delivery person, sailor, courier, lumberjacks, firefighters and people with different interests to improve the productivity, safety, and for ease of.

From some pemakaiaa above are categorized into:

1. Location, is used to determine where the location of a point on the surface of the earth is.
2. Navigation, helps you locate any point on Earth.
3. Tracking, helping to monitor the movement of the object.
4. Help map the specific position, and the calculation of the nearest network.
5. Timing, can be used as a basis for determining hours around the world, because it uses an atomic clock that is much more precession compared with normal hours.

2.2.8 Unified Modeling Language (UML)

OOAD concepts include analysis and design of a system with an object approaches, the object-oriented analysis (OOA) and object-oriented design (OOD). OOA analysis method that checks for requirements (requirements / purposes) that must be met in a system) from the viewpoint of classes and objects found within the scope of the system. While OOD is a method of directing software architecture that is based on the manipulation of objects on open standards system or subsystem that is managed by the Open Management Group (OMG) under the auspices of the companies open consortium. UML is a modeling language which comprises many models are which.

1. Use Case Diagram

Use case diagram is a model that focuses on the main functionality within a system context. Use case diagrams also stressed the main functional behaviors in the system interact with objects outside the system. In addition, the use case diagram also has drip of which weigh against this type of relationship between major functions. As for the components in a use case diagram.

a. Aktor

The actor is an entity associated with the system but not from within the system itself. The actor is outside the system, but is closely related to the functionality therein. Actors can have a direct relationship to the main function well against any or all of the major functionality. Actors can also be divided against different types or levels by means of generalized or specified depending on the needs of the system. Actors usually can be either a user or database that view are in a scope of the system.

b. Use Case

Use case is an overview of the main functions or processes that describe the behavior of a system. This system-defined behavior of a business process system to be modeled. Not all business processes described functionally in use case, but described only the main functionality associated with the system. Use case focuses on how a system can interact both between the system and outside the system.

2. Class Diagram

Class diagram is a diagram that is always there in modeling object-oriented systems. Class diagrams show relationships between classes in the system that is being built and how they collaborate to achieve a goal. Classes on the class diagram consists of three main parts: the name of the class, the contents of the property of the class along with the existing methods in that class. Class also have these types of relationships such as associative, dependencies, aggregation, composition, specification and generalization. This relationship is used to describe how the relationships and interactions that occur between classes. Each of the

components making up the class has access rights as public, private, and protected.

3. Sequence Diagram

Sequence diagram describes in detail the sequence of processes performed within the system to achieve the purpose of the use case: the interactions that occur between classes, operations are involved, the order between operations, and information required by each operation.

2.2.9 Database

Database or database is a collection of data that is stored systematically in the computer and can be processed or manipulated using the software (application program) to produce information. Defining database includes specification of data types, structures, and also the limits of data to be stored. The database is a very important aspect in information systems that the database is a repository of data to be processed further. The database is important because it can avoid duplication of data, relationships between data that is not clear, data organization, and also updates complicated.

The process to enter and retrieve data to and from the data storage media need software called a database management system (database management system | DBMS). DBMS is a software system that allows the user to maintain, control, and access data in a practical and efficient. In other words, all access to the database will be handled by the DBMS. There are some functions that should be addressed DBMS that process of defining the data, it can handle user requests to access the data, check the security and integrity of data that is defined by the DBA (Database Administrator), dealing with failure in accessing data due to a system malfunction or disk, and handle demonstrations work all functions efficiently.

The main goal of the DBMS is to provide an overview of abstract the data to the user (user). So the system hides information about how data is stored, maintained, and still can be taken (access) efficiently. Efficient consideration here is how to design complex data structures, but can still be used by a novice user without knowing the complexity of its structure.

2.2.10 MySQL

MySQL is a software SQL database management system (English: a database management system) or the DBMS is multithreaded, multi-user, with about 6 million installations worldwide. MySQL AB makes MySQL available as free software under the GNU General Public License (GPL), but they also sell under a commercial license for cases where use is incompatible with the GPL.

Unlike PHP or Apache which is software developed by the general community, and the copyright to the source code are owned by their respective authors, MySQL is owned and sponsored by a Swedish commercial company MySQL AB. MySQL AB holds almost a full copyright for all its source code. Both the Swedes and the Finns who founded MySQL AB: David Axmark, Allan Larsson and Michael "Monty" Widenius. As for the features of MySQL among others:

1. Relational Database System. As with any other database software on the market, including the MySQL RDBMS.
2. Client-Server architecture. MySQL has a client-server architecture in which the MySQL database server is installed on the server. MySQL client can reside on the same computer with the server, and can also be on other computers that communicate with the server through the network and even the Internet.
3. Know the standard SQL commands. SQL (Structured Query Language) is a standard language that applies in almost all the software database.
4. Supports Sub Select. Starting with version 4.1 of MySQL has supported select the select (sub-select).
5. Supporting Views. MySQL supports views since version 5.0.
6. Support Stored Prosedured (SP). MySQL supports the SP since version 5.0.
7. Supports Triggers. MySQL supports triggers on version 5.0, but is still limited. MySQL developers promise to improve triggering capabilities in version 5.1.
8. Supports replication.
9. Supports transactions.
10. Support for foreign keys

2.2.11 Java

Java according to the definition of the Sun is the name for a collection of technology to create and run the software on a standalone computer or in a network environment. Java was developed in August 1991, with the original name Oak. In January 1995, because the name Oak is considered less commercial, then changed to Java. In December 1998, Sun introduced the name "Java 2" (J2) as the second generation of the Java platform. The new naming convention is applied to all Java editions, Standard Edition (J2SE), Enterprise Edition (J2EE) and Micro Edition (J2ME).

3. ANALYSIS AND DESIGN SYSTEM

3.1 Analysis System

This vehicle monitoring application is an application to determine the location of a car and enable delivery of used vehicle speed information. Application can be used when the owner wants to know the position of the car rental that direntalkan was where and at what speed the vehicle is used. Each application is installed on the smartphone must be logged in dahulu.Setelah found the first device to obtain location information along with the target speed of the vehicle which has been used.

3.1.1 Analysis of problems

Each rental owner certainly no sense to worry about the cars they rent. Surely rental owners want to know the location where the car is located and also wanted to know whether the vehicle speed is below the speed limit is normal or not. During this time to handle the matter rental owner should call or send a text message continuously. Of course, this way is less effective because in addition takes too costly. For that we need a system that can solve the problem by knowing the location and vehicle speed information based on Android among others:

1. Own a rental it difficult to know where the vehicle is being direntaL. Because more and more cars on the re rent, make overwhelmed rental owner to determine and review the whereabouts of the kendaaran.
2. rental owners find it difficult to know thebehavior of the driver drive in the line of duty.
3. To know the history of travel in the rental. In order to know where any owner of rental car stopped and how long the cessation.

3.1.2 Analysis System Architecture

Selected for the development of the architecture on the mobile platform describes how the software interact with each other as illustrated in image 3.1 software architecture on the mobile platform. The image depicts the overall architecture of the system on the android platform.

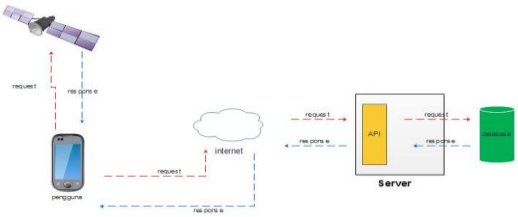


Image 3. 1 Architecture Software On Android Platform

Here is the description:

1. The mobile device data to a user request via the web service API
2. Web service receives request data from API
3. The Web service will immediately take the existing data in the database
4. Once the web service receives the requested data from the database will be returned to the API
5. The API will change the data in the form of JSON
6. The mobile device will take the data from the API

3.1.2 Spesifikasi Kebutuhan Perangkat Lunak

Software requirements specification requirements are divided into two non-functional requirements and functional. Functional requirements can be seen in Table 3.1 Functional Requirements Specifications

Tabel 3. 1 Spesifikasi Kebutuhan Fungsional

Spesifikasi Kebutuhan Perangkat Lunak Fungsional di Platform Mobile	
Kode SKPL	Keterangan
SKPL-F 001	Sistem menyediakan fasilitas untuk sign in kendaraan
SKPL-F 002	Sistem mobile menyediakan fasilitas untuk menampilkan review perjalanan
SKPL-F 003	Sistem mobile menyediakan fasilitas untuk menampilkan lokasi kendaraan
SKPL-F 004	Sistem mobile menyediakan untuk menampilkan kecepatan kendaraaan
SKPL-F 005	Sistem mobile mampu mengirim peringatan kepada supir kalau kecepatan melebihi batas maksimum
SKPL-F 006	Sistem mobile menyediakan fasilitas bagi pengguna untuk menambahkan riwayat perjalanan kedalam sistem

3.1.3 Use Case Diagram

Use Case Diagram is a model to describe the behavior (behavior) software that will be created. Here is Image 3.2 Use Case Diagram

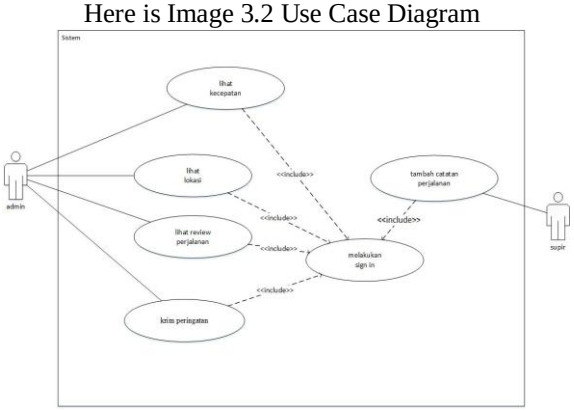


Image 3. 2 Use Diagram

3.1.4 Diagram Activity

Activity diagram illustrates the actors working on the software to be built.

a. Activity Diagram Sign In

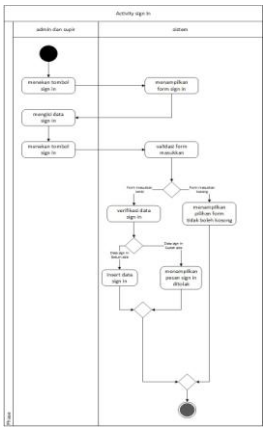


Image 3. 3 Activity Diagram sign In

3.1.5 Class Diagram

Class diagram illustrates the structure of the system in terms of pendefinisisan classes will be created to build the software.

Here are the Class Diagram Image 3.4 shows the class structure of which is related to the other class

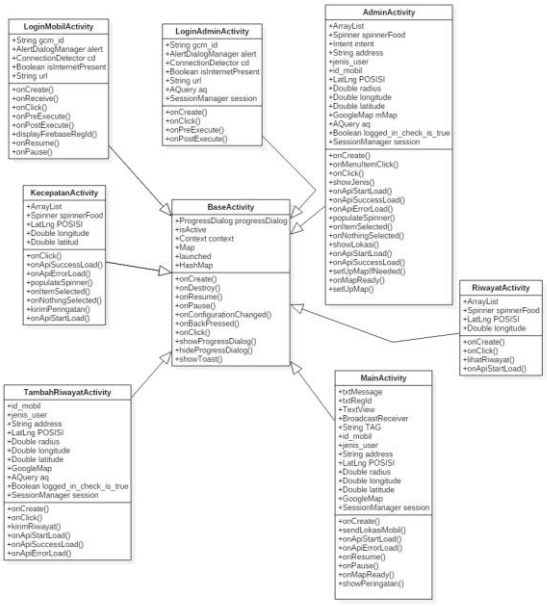


Image 3. 4 Class Digram

3.1.6 Diagram Sequence

Sequence diagrams are used to describe the flow of work, the message is conveyed and how elements in them work together from time to time to achieve a result.

a. Sequence Diagram Sign In

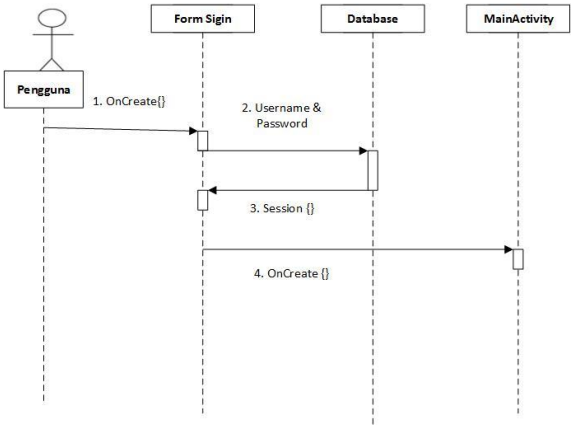


Image 3. 5 Sequence Diagram Sig In

3.2 System Design

No	name interface	File name
1	Main page	activity_main.xml
2	Sign in	Sign in.xml
3	See travel review	See travel review .xml
4	See location	See location .xml
5	See speed	See speed .xml
6	Send notification	Send notification .xml

The design is part of a software development methodology that should be a longer period through the analysis phase. This section will explain the system design is meant to illustrate the difference between the current system with the proposed system. This system design using computerized systems approach.

3.2.1 Database Design

Design data or better known by the stage design of the database is to map the conceptual model to a database model that will be used. Database design into two parts, namely the relationship diagram and table structure.

3.2.1.1 Diagram Relasi

Relationship diagram is a series of relationships between two or more tables in the database system. Relationship Diagram Figure 3.6 is a picture of a series of data bases.

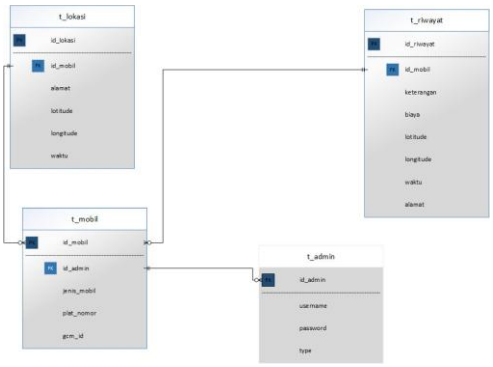


Image 3. 6 Diagram Relasi

4. IMPLEMENTATION ANDTESTING SYSTEM

4.1 System Implementation

Implementation stage is the stage translation system design based on the results of the analysis into a particular programming language and application software that is built on a real environment.

4.1.1 Interface Implementation

Implementation of the interface contains the exposure of each display software that was built along the xml file as the layout of each interface. The implementation of the interface software built consists of the name of the interface as well as class or files that represent.

Implementation antamuka mobile software system that is built can be seen in Table 4.1 mobile system an interface implementation.

Tabel 4. 1 Implementasi Antarmuka Sistem Mobile

4.2 Testing the system

Software testing is the cornerstone that aims to discover errors and deficiencies in the software being tested. The test aims to determine the software that made already meet the criteria in accordance with the purpose of designing the software.

These software testing use testing negligent by using black box and beta testing. Testing negligent using black box method focuses on the functional requirements on the software built into the beta and focus on user satisfaction ratings of software built.

4.2.1 Alpha testing

Alpha testing is done by using black-box method that focuses on the functional requirements of software.

4.2.2 Evaluation Testing

Based on the results of application testing is done it can be concluded that the mobile system of software that is built has been running as expected both in terms of test of blackbox.

5. COVER

5.1 Conclusion

Here is the conclusion that can be drawn on the final results of this study.

1. Applications Using GPS and sensor technology Acelerometer on android platform can help determine where the car just stopped and how long the car stopped.
2. Applications Using GPS and sensor Acelerometer on android platform can also find out the speed of driving the car.
3. Because of all this in supervising or monitoring the performance of the driver is very difficult due to the rental use these applications are able easily to monitor the performance of the driver on duty.

5.2 Suggestions

Software Uses GPS and sensor technology Acelerometer already constructed have been able to resolve the problems faced. As for suggestions for the development of this application required a study using other technologies in order to get a more accurate distance.

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