DEVELOPMENT OF ANDROID APPLICATION AS A TOOLS OF SALES CANVASSER STAFF IN CV FAMILY'S IN MARKETING OF QUOTA CARD

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ABSTRACT

CV. Family'S or people know as Counter Family'S is a Counter that provides a quota card, vocer and starter pack and other accessories mobile phone with affordable price. Counter This is one of the necessities for anyone who has a mobile phone to facilitate communication and search information through both the quota card and sim card.

The adoption of the Global Positioning System (GPS) on the Family Sales Application (FSA) mobile app is to provide information on sales in determining the closest route from where the sales position resides. Based on the above, research is being done to implement Global Positioning System on Android operating system for Family Sales Application (FSA) mobile application.

Keywords : *mobile store Alisha Fancy Shop, Global Positioning System, Nearest Search Route*

1. INTRODUCTION

CV Famili'S Cell is a Counter that provides the complete Quota Accessories and Card at affordable prices. Family'S Cell also includes goods both quota cards and starter packs on every counters, because quota cards, prime and acessories is a daily necessity for smartphone users to facilitate communication and search for uptodate information. Currently Family'S Cell has 3 Counters, 2 Counters in subdistrict rancaekek East Bandung, 1 Counter center located on Jl Peundeuy district Cikancung.

Currently the sales process that is in the Family'S Cell in addition to offline way of direct sales in Counter, Family'S Cell also has sales sales to make the sales process by marketing on Counter-Counter that has been registered. But seeing the current development of smartphones that continue to grow then the CV Family'S Cell would like to assist sales in marketing the quota card and prime on every Counter visited to be applied to mobile flatform in order to further improve the service for its customers to more easily and flexibly in the buying process.

Based on the results of interviews with Mr. Sarif Sukandi as the owner of CV Family'S and Sales as an employee of CV Family'S Cell at this time the sales in doing the task of marketing a quota card or accesories in each Counter is still random, because there is no route guide Counter where the location More closely to be able to seles first visit.Sales also do not know the information Counter-Counter anywhere whose stock card quota is exhausted and sales transactions are still manually, so the sales in doing the task less than the maximum, will cause waste both with time, waste of gasoline, And energy. Based on that also the owner of CV Family'S Cell does not know the reporting of sales work when on duty field, whether the sales are true in doing his job in the field or breaking.

By utilizing the features available on the smartphone can be used to increase the performance of the work is usually done by manual method with the help of the smartphone it will become more helpful and more practical in the recording. One of the most popular mobile device operating systems of late. Android smartphone has many advantages as software that use computer code base which can be distributed openly so that user can make new application in it. In addition android also has many other advantages compared with other operating systems contained in mobile phones. Then, the android operating system has the advantage in terms of hardware in terms of processor speed and maximum memory capacity that can be accommodated again [1].

Based on the above description it is necessary to build an application of the existing problems, while the application is built using the System Push Notification related in the process of delivering the quota card needs information on other Counter-Counter, GPS to find out how much accuracy in determining the location and LBS (Location Based Service) to provide information about the location of the stores visited by CV Family'S Cell sales. Development of this application is expected to assist the sales in processing data marketing report card quota because at this time the sales are still recorded on paper other than the data easily damaged the process pembutannya relatively long.

2. LITERATURE REVIEW

2.2 Theoretical Basis

Theoretical basis is the explanation of the basic concepts of theories that have been systematically compiled and the strong foundation related to the research. The theoretical foundations used in Android Application Development as a Sales Canvasser Staff Tool In Family's CV In Quota Card Marketing By Utilizing GPS Technology, Location Based Service, Mobile-Based Android, includes Counter, canvasser stages of any Counter-Counter information requiring quota cards, Applications, Understanding Applications, Classification of Applications, Understanding Mobile, Understanding Mobile Applications, Android, Internet Networks, GPS, LBS, Google Maps , React Native, Javascript, JSON, MySQL Database, Unified Modeling Language (UML) and Web Service.

2.3 Mobile Applications

Mobile apps come from the word application and mobile. Application which means application, application, and usage. In term of application is a ready-made program that performs a function for the user or other application and can be used by the intended target while mobile can be interpreted as moving from one place to another.

Mobile-based application itself is divided into two, mobile web-based applications and native apps, the explanation is as follows ;

1. Mobile web-based applications (Hybird)

A hybrid app is a web app that is transformed into native code on platforms like Ios or Android. Hybrid applications typically use a browser to allow web applications to access various features in mobile devices such as Push Notification, Contacts, or Offline Data Storage. Some tools to develop hybrid applications include Phonegap, Ruby motion and others.

2. Native Applications

Native apps are applications built with programming languages that are specific to a particular platform. A popular example is the use of Objective-C or Swift programming languages for the iOS (Apple) platform. The Android platform that uses the Java programming language.

2.4 Global Positioning System (GPS)

Global Positioning System is a satellite-based navigation system consisting of a network of 24 satellites placed into orbit by the United States Department of Defense which was first introduced starting in 1978. GPS services used to be used only for military purposes but began to open to the public. 24 GPS satellites are located about 12,000 miles above the earth moving around the earth 12 hours at a speed of 7,000 miles per hour. GPS satellites with solar energy, have a spare battery to keep them running during a solar eclipse or when there is no solar energy and have a small booster rocket on each satellite to orbit right into place [8].

GPS satellites must always be in the proper orbital position to maintain the accuracy of the data sent to the GPS receiver, so it must always be maintained to the right position. The positions of these satellites are always monitored by the control station. The controlling stations on earth are in Hawaii, Ascension Islan, Diego Garcia, Kwajalein and Colorado Spring. To be able to know the position of a person is required a tool called GPS receiver which function to receive signals sent from GPS satellites. The GPS receiver picks up the information and performs a triangulation calculation to pinpoint the user's location correctly. The GPS receiver compares the time the signal is sent with the time the signal is received to know the satellite distance. By knowing that distance, the GPS receiver can calculate and determine the user's position and display it in an electronic map. After determining the user's position, then GPS can calculate other information, such as speed, destination, path, destination, destination, sunrise and sunset and more [8].

2.5 Location Based Service

Location Based service is a generic term used to describe the technology used to locate the devices we use. The two main elements of LBS are:[9].

1. Location Manager (API Maps)

Providing tool / source for LBS, the Maps Application Program Interface (API) provides the facility to view, manipulate maps and other features such as satellite view, street, or combination. This package is at com.google.android.maps.

2. Location providers (API Location)

Provide location search technology used by device / device. Location API is related to GPS data and real-time location data. The location API is on the android package which is in the android location package. With Location Manager, we can determine our current location, movement tracks / displacements, as well as proximity to specific locations by detecting displacement.

2.6 Push Notification

Push notification message types sent from apps to devices, most often used by mobile apps to provide information related to their users. Push notification appears as a notification message on the device's home screen. Users do not need to open or run the app to receive notifications from the app. Push notification is available for all operating systems: iOS, Android, and more [10].

2.7 Google Cloud Messaging

GCM (Google Cloud Messanging) is a service on Android that works to run a Push Notification. In Android the GCM service is run by an app that runs in the background and is named Google Play Services. This service will wake the application in question when receiving a new notification and will display the notification in the Android notification panel [11].

Google Cloud Messaging (GCM) is a free service provided by google. With GCM we can send data from server via GCM which then forwarded to client in this android device. This service can send notification or message of 4kb.



Gambar 2.1 Google Cloud Messaging

2.8 Object Oriented Programming (OOP)

Booch states "Object-oriented programming is an implementation method in which programs are organized as a collection of cooperating objects. Each object represents the instant of the class, and the classes are members of a hierarchy of classes that are united through the inheritance linkage"[14].

2.9 UML (Unifed Modeling Language)

Unified Modeling Language (UML) is incorporated into a type of graphical notation modeling model supported by a single meta-model. This modeling is useful for assisting in describing and designing object-oriented (OO) software. ASL is a common syntax for creating The logical model of a system and used to describe the system to be understood during the analysis and design phase. UML is a modeling language that consists of many models [15].

2.10 Entity Realitionship Ddiagram (ERD)

Entity Relatiunship Diagram (ERD) is a diagram used to describe the relationship between entities contained in the system. According to Parno's quote in database system design (2002: 3), "Entity Relationship model is a presentation of data by using entity and relationship". From the above understanding can be seen that entity relation diagram (ERD) is a diagram that describes the relationship model between the design of stored data. This relation model is needed to describe the structure of data relationships between data (which may be very complex). ERD data model is formed from four basic components namely:

1. Entitas

Is everything that can be distinguished. This entity may be any person, place, object, event or concept that may provide or contain information.

2. Relasi

The relationship between an entity or multiple entities. The types of relationships that exist in the data base are as follows:

a) Relationships to one (N-1)
b) Relationships are many to many (N-N)
c) One to many relationships (1-N)
d) One to one relationship (1-1)

3. Atribut

Each entity has attributes or data elements that characterize the entity. Attribute Value is an actual data or information stored on an attribute in an entity or relationship. Types of attributes such as :

a) Key
The attribute used to specify an entity is unique.

b) Atribut Simple
A single-value attribute.
c) Atribut Multivalue
An attribute that has a set of values for each instance of an entity.
d) Atribut Composite
An attribute consisting of several smaller attributes that have a certain meaning.
e) Atribut Derivatif
An attribute generated from another attribute

2.11 Diagram Kontek

According Jogiyanto H.M in his book entitled Analysis and Design of Information Systems explains that, "Context diagram is the first data flow diagram that is drawn is the top level (top level)".

2.12 JavaScript Object Notation (JSON)

Java is a programming language that can be run on various computers including mobile phones. This language originally created by James Gosling while still in Sun Micro systems is currently part of Oracle and released in 1995. This language adopts much of the syntax found in C and C ++ but with a simpler syntax of object models and the support of the regular-level routines Down is minimal. Java-based applications are generally compiled into p-code (byte code) and can run on various Java Virtual Machines (JVM). Java is a programming language that is general / non-specific (general purpose), and is specifically designed to utilize implementation dependencies to a minimum .

JSON (JavaScript Object Notation) is a lightweight, readable and written data format for humans, and easily translated and generated by computers. This format is based on part of the

JavaScript Programming Language, Standard ECMA-262 3rd Edition - December 1999. JSON is a text format that does not rely on any programming language because it uses the common language styles used by C family programmers including C, C ++, C # , Java, JavaScript, Perl, Python etc. Because of these properties, JSON makes ideal as a data-exchange language. JSON is made up of two structures [12] :

1. A set of name / value pairs. In some languages this is expressed as objects, records, structures (structs), dictionaries, hash tables, keyed lists, or associative arrays.
2. List of ordered values (an ordered list of values). In most languages this is expressed as array, vector, list, or sequence.

3. RESEARCH CONTENTS

3.1 System Analysis

System analysis can be defined as the decomposition of a complete information system into its component parts in order to identify and evaluate the problems, constraints and expected needs.

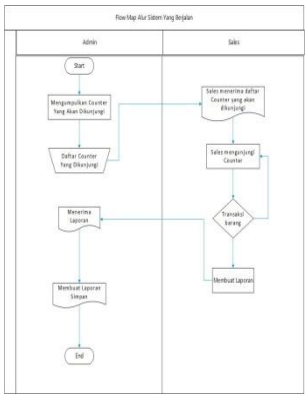
3.2 Problem Analysis

Problem analysis is the stage of collecting and determining the problem that is the core of the idea of software development. Where one of the obstacles in the marketing of quota cards at the first and subsequent counters is still random, and sales difficulty to get a new time change of quota card in Counter first and subsequently so that sales in performing tasks less than optimal, and difficulty the CV Family'S Cell monitor sales In charge of marketing a quota card at the counter that will need it.

3.3 Analysis of Current System

Ongoing system analysis is done by interview method to Mr. Syarif Sukandi as the owner of CV Family'S to get a complete picture of the current system is running then the results will be depicted in the form of Flow Map according to the activity that occurred. Analysis of the current system is as follows :

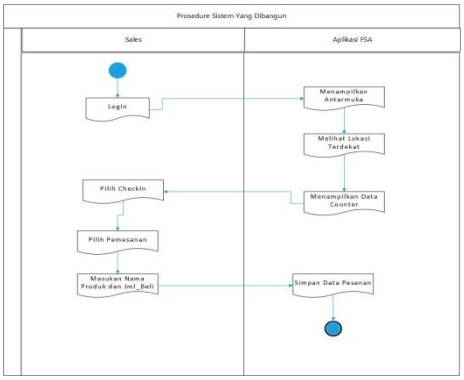
1 Admin collects a list of counters to visit
2 Admin creates a list of counters to be visited by sales
3 Sales get a list of Counters to visit.
4 Sales visit Counter Counter that has been registered
5 Sales checks the goods on Counter and offers new items
6 After arriving at the Counter location, sales make goods transactions, as well as see the availability of goods, and payment transactions.
7 If the registered Counter has all visited then the sales report and return to Counter.
8 Reports are given to the admin by sales
9 Reports received by the admin.



Gambar 3.1 Analysis of Current System

3.4 Analysis of Built-in System Procedures

The new system analysis contains the analysis that runs later. In certain ways that are different from the current system. Compared to the currently running system. With the new system it provides convenience to users.

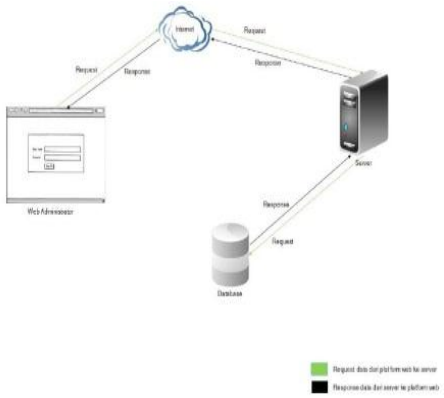


Gambar 3.2 Analysis of Built-in System Procedures

3.5 Analysis of Built Systems

a. **Web**

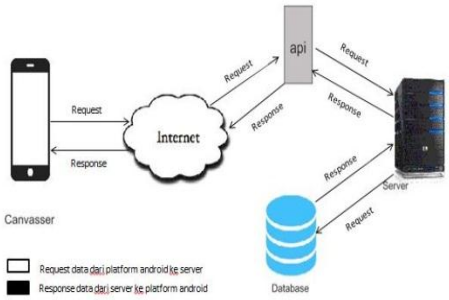
The web platform is one of the subsystems chosen for the development of this software. The user of this platform software is divided into two namely the administrators and users.Administrator tasked to process user content data, As for the user is used to process user travel records data. Here is Figure 3.4 Software architecture on the web platform.This image describes the overall system architecture on the web platform.



Gambar 3.3 Software architecture on the web platform

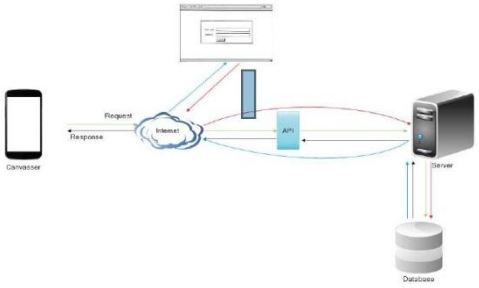
b. Mobile

The mobile platform is one of the subsystems chosen for the development of this software.The software architecture on the mobile platform illustrates how software interacts with each other as illustrated in Figure 3.5 The software architecture on the mobile platform. The image depicts the overall architecture of the system on a mobile platform.



Gambar 3.4 Software architecture on mobile platform

The system architecture depicted in Figure 3.5 The software architecture on the mobile platform is the depiction of the system based on the perspective of the mobile system, whereas in Figure 3.6 the overall System Architecture describes the system architecture from the perspective of two sub systems as a whole.



Gambar 3.5 Overall System Architecture

4. IMPLEMENTATION AND TESTING

4.1 System Implementation

Once the application is analyzed and designed in detail, the next step is implementation. The purpose of the implementation is to describe the implementation environment where the system will be planted or installed so that users can provide input to system development.

4.1.1 Hardware Implementation

The hardware used to implement the system is as follows.

Tabel 4.1Tabel Hardware Specifications

No	Perangkat Keras	Spesifikasi
1	Prosessor	Intel(R) Core i5 4200U CPU @ 1.60GHz 2.30GHz
2	Harddisk	128 GB
3	Memory	4 GB
4	VGA	512 MB
5	Monitor	14 inch
6	Mouse	Optical Logitech
7	Keyboard	Standard QWERTY

The hardware to access the system is as follows:

Tabel 4.2Tabel Specifications for Accessing the System

Website	Mobile
1. Prosessor Intel(R) CPU @ 1.20GHz	1. Prosessor @800MHz
2. Harddisk 64 GB	2. RAM 512 MB
3. Memory 1 GB	3. Memory 1 GB
4. VGA 128	4. TFT LCD 4 Inch
5. Monitor 14 Inch	5. Koneksi Internet
6. Mouse	
7. Keyboard	
8. Koneksi Internet	

4.1.2 Lunak Software Implementation

The software used to build and implement the system is as follows:

1. Sistem Operasi Windows 7 Ultimate
2. Notepad++
3. Xampp
4. PHPMyAdmin
5. Android Studio

Here are the software specifications for accessing the system:

Tabel 4.3Tabel Software Specs for Accessing the System

Sub Sistem Web	Sub Sistem Mobile
Sistem Operasi Windows 7 Ultimate	Sistem Operasi Android 5.0 Lolipop
Web Browser 1. Mozila Firefox 2. Google Chrome	

4.2 Interface Implementation

The interface implementation contains the exposure of each software display built along with the xml file as the layout of each interface. The implementation of the built-in software interface consists of the interface name along with the class or file representing it.

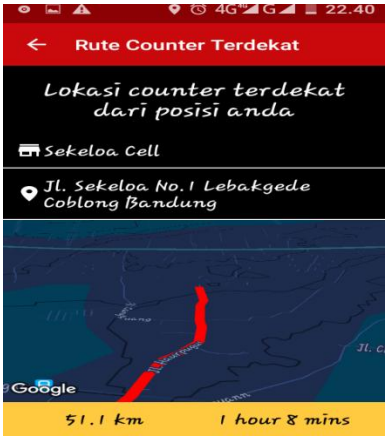
1. Login View



2. Main Display



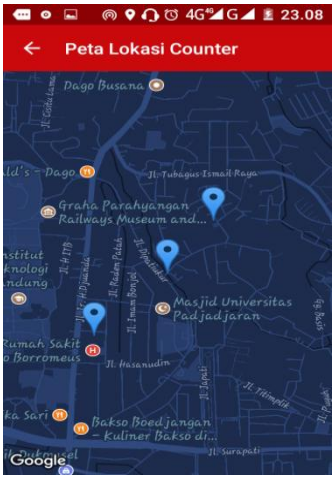
3. View of Nearby Locations



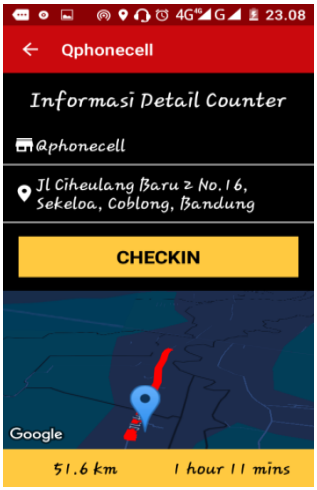
4. Visible Views



5. Tampilan Detail Counter



6. Tampilan Pilih Counter



4.3 System Testing

System testing is performed to find errors and deficiencies that were not found before, this test is done especially on testing the functionality of the system and the performance of the system has been built.

4.3.1 System Testing Plan

Testing the system to be done is divided into two stages. The first phase of testing focuses on software functionality built using the blackbox testing method. The second phase of the test will focus on the user's assessment of the software being built, the method of data collection conducted is an interview to the CV Family's Owner and Sales.

4.3.2 System Testing Scenarios

The test scenario will expose the sequence in the test to be performed on the built software. Software testing scenario to be built is divided into two namely the scenario of functionality testing

5 CLOSING

After completing a series of stages in designing and building applications "Android Application Development As A Sales Canvasser Salesperson In CV Family'S In Quota Card Marketing" on android system from data collection to testing phase, it can take some conclusions on the test results performed is:

1. Based on the results of alpha and beta testing it can be concluded that the built application has been able to search the nearest route that will be visited by the sales of the first route and the next route. This application can only find the closest route whose locations are located in the database where the locations are taken from the coordinates of a counter place both latitude and longitude located within Google Maps.

2. The next goal of this application development sales have been getting counter counter information anywhere that must be sales visit, based on the test results sales applications have been able to determine the appropriate visit to perform tasks in the field, this application is on the counter that will be visited by sales , Sales know today to visit the counter that has been specified by the CV Family'S. Therefore the FSA application needs to be developed further in order to provide notification on the FSA sales application.

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