

THE APPLICATION OF E-TRASH DESIGN MODEL USING LOCATION BASED SERVICE (LBS) TECHNOLOGY

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The goal of this research is to produce a community complaint model on hygiene and its environment in the form of Mobile E-Trash Application which applies the concept of complaint wherever and whenever, while the specific target of this research is to develop the E-Trash Application design model by using Location Based Service (LBS) as one of the alternative modeling application of Community Based Complaint System. The research phases focused on developing Mobile E-Trash application model with the creation of a mobile e-trash application software which has contained some online reporting content; Subsequently developing an application design model into a mobile server with a Location Based Service (LBS) based mobile service application. the methods used, among others Applications are designed using java and XML programming languages, for system databases using MySQL. The Google Maps API is used to display Location Maps accessible via smartphone. For server use IDE DELPHI and use JSON Script to retrieve data from database server to client application. the results of this study The e-Trash display design is built on user friendly (user friendly), so the e-Trash application is easy to operate. In addition, the user friendly e-Trash application is easy to use by anyone. User friendly also makes a beginner has no trouble in operating the software and application program.

Keywords: Model, Application, Mobile, LBS.

1. INTRODUCTION

Information and Communication Technology has long been used in the Government environment, which now spawns the term e-Government and has shown progress towards improving public services by agencies that have applied it. This E-Government has been manifested in the form of various Information Systems to serve the public interest.

This research has resulted in produce a community complaint model on hygiene and its environment in the form of Mobile E-Trash Application which applies the concept of complaint wherever and when.

The E-Trash Application System must be reachable by the community on the grounds of ease of use, which serves as a tool to connect government apparatus to the community with no limited space and time and cost-effective in terms of transportation and communication usage.[4] This application system is an Intelligent City Information System prototype, defined as a software that empowers groups of urban actors (cities, communities,

citizens) to jointly address city challenges in a more

efficient and intelligent manner [2].

Based on the character and needs of the system, which can directly report on events, events, and conditions occurring in the field encountered by the community while they are at that location, what is required is a mobile application with service based location based service that is reliable As well as easy to use and even just by using a mobile phone.

The information that can be submitted by the community is a direct finding that occurred in the field of cleanliness and saving the environment, with equipped with various information in the form of pictures and location data received by government officials who then followed up. Cleanliness and other problems in the field.

2. LOCATION BASED SERVICES (LBS)

Location Based Services are information services that can be accessed through mobile devices using mobile networks, which are equipped with the ability to utilize the location of the mobile device. LBS provides the possibility of two-way communication and interaction. Therefore the user notifies the service provider to get the information he needs, with reference to that user's position. Location-based services can be described as a service that is at a meeting of three technologies: Geographic Information System, Internet Service, and Mobile Devices, this can be seen in the picture LBS is a meeting of three technologies [1].

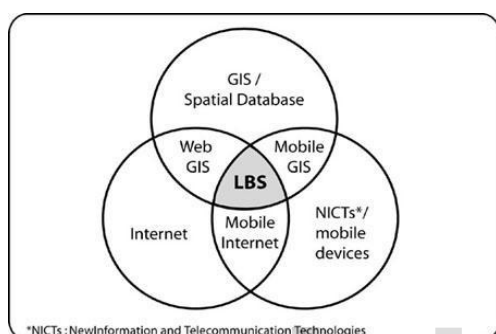


Fig 1. LBS as an intersection of three technologies

3. E-TRASH MODEL DESCRIPTION

Based on observation result, reporting activity of presence of garbage in makassar city still need long time because reporting must report to garbage officer when cleaning officer check garbage at shelter or by coming directly to sanitation office of Makassar city. Observation results show that in reporting the presence of waste can be described as follows:

- (A). Reporting activities still use conventional traditional reporting models.
- (B). Not using technology yet.
- (C). The lack of development of reporting technology by using mobile phones.

3. E-TRASH APPLICATION ARCHITECTURE

Applications are designed using java and XML programming languages, for system databases using MySql. The Google Maps API is used to display Location Maps accessible via smartphone. For server use Delphi IDE and use JSON Script to retrieve data from database server to client application.

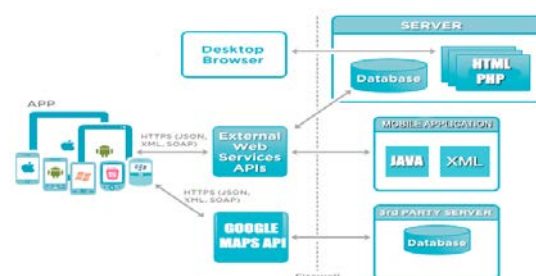


Fig 2. E-Trash Application Architecture

4. ANALYSIS OF SYSTEM REQUIREMENTS

The analysis of the requirements specification will result in a specification of the operational characteristics that the e-trash mobile application will have. These conditions will indicate the mobile e-Trash interface design with other systems, while also setting the limits of mobile e-Trash applications.

The modeling of e-Trash mobile requirement specification produces several types of models as follows:

1. Scenario-based model
The design of learning technology with e-Trash, which became the system or software actor is the Society and the system.
2. Model data, explaining the realm of information for the problem to be solved
3. Class-oriented model, This software uses JAVA programming language, so it can make some class-oriented model.

5. DESIGN DEVELOPMENT WITH MODEL UNIFIED MODELING LANGUAGE (UML)

Mobile e-Trash Application Modeling with Unified Modeling Language (UML) is a common modeling language used to perform specifications, visualizations, constructions and artifact documentation of the softwaresystem. Modeling (modeling) is the process of designing software before doing the coding (coding). The software model can be analogous to making blueprint on building construction. Creating models from a complex system is important because we can not understand such a system thoroughly. The more complex a system, the more important is the use of good modeling techniques.

The E-Trash mobile application modeling design, described as follows:

Use case diagrams describe the expected

functionality of a system. For the e-Trash application that is created, described the use case modeling as follows:

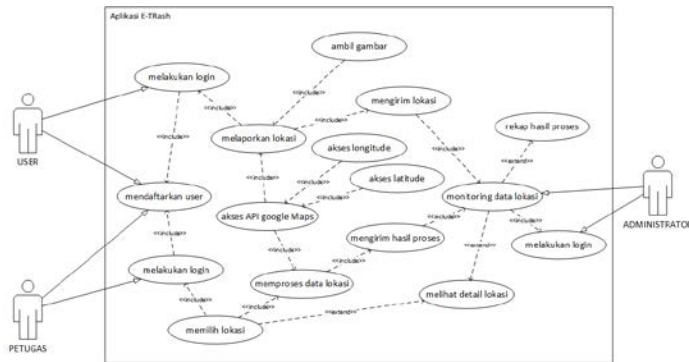


Fig 3. Usecase Diagram

Use Case The diagram illustrates the type of activity performed by the actors involved in the system, the community as the primary user in the system tasked to send the location of the garbage heap found using the e-Trash application then take a picture with the smartphone camera and send longitude and latitude automatically to the server Via GPS smartphone. The system administrator as the second actor, tasked to monitor the results of reports from the public can recap the report results by looking at all the details of the location. And the third actor is a janitor who uses the system to select the location through Google MAPS where the address appears on the system in accordance with the community report, after seeing the location of the officer can perform the process on the system and report to the server administrator, if it has cleaned up the garbage heap.

Activity diagrams describe the various activity flows in the system that are being designed how each flow begins, the decisions that may occur, and how they are last. Activity diagrams can also describe parallel processes that may occur on some executions. Activity diagram is a special state diagram, where most states are action and most transitions are triggered by the completion of the previous state (internal processing). Therefore the activity diagram does not describe the internal behavior of a system (and interactions between subsystems) exactly, but rather describes the processes and paths of activity from the top level in general. An activity can be realized by one use case or more.

Activity describes the running process, while the use case illustrates how the actor uses the system to perform the activity.

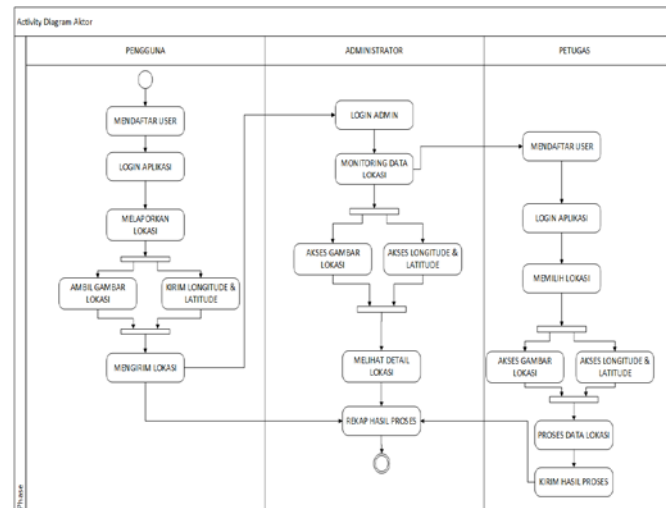


Fig 4. Activity Diagram

The diagram above illustrates how the three actors exchange data. The data pointed at the position of the waste point to be processed on google MAPS where longitude and latitude are accessed using smartphone applications. Administrator as the server that manages data and access by other actors.

6. METHODOLOGY

The methodology used in this research is development research method with special method of software development using Software Development Life Cycle (SDLC) method with Waterfall-based Model. Since the media developed in this development research will produce the final product in the form of simulation program software, the third stage will be followed by the fourth stage of the development design that is adapted to software development method that is Software Development Life Cycle (SDLC) method with Waterfall Model.[2] This SDLC methodology is a methodology for analyzing and designing a system in a structured manner. The SDLC methodology consists of the following stages:

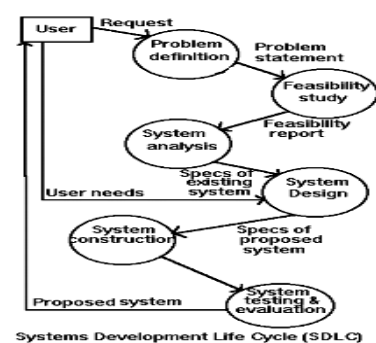


Fig 5. SDLC Diagram

In this study Data Collection Techniques conducted among others

- a. Interview
 Data collection by way of communication and direct interview with officer of Cleansing Department.
- b. Library Studies
 Data collection by using or collecting written sources, from journals, related research, and books related to mobile programming, presidential instruction on Strategy of E-Government Development., studying and recording important matters relating to the issues under discussion in order to obtain an overview theoretically that can support the preparation of proposals.

4. RESULT

The e-Trash display design is built on user friendly (user friendly). In addition, the user friendly e-Trash application is easy to use by anyone. User friendly also makes a beginner has no trouble in operating the software and application program. Interface design can be seen in the following figure:

a. Design of User Form (User Side)

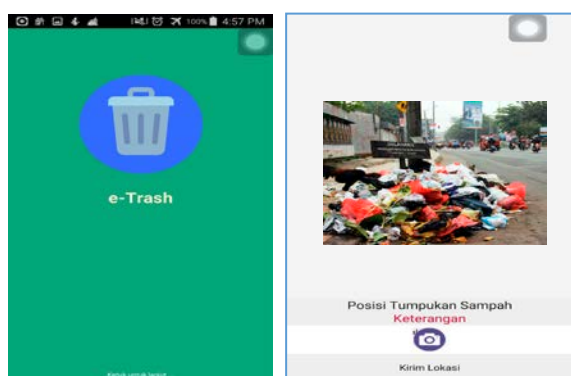
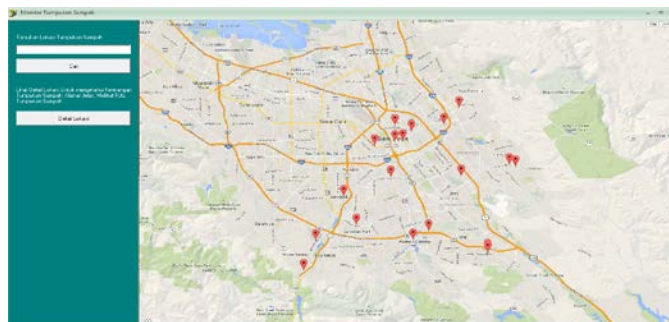


Fig 6. User Interface for user

Display interface design in the image above have been paying attention and set the layout of button, textfield, menu or other visual components so as not to confuse the user in the application of e-trash. Location photos, longitude data and latitude data are sent simultaneously to the server for monitoring and are reported to the officer in real time.



b. Server Form Design

Fig 7. User Interface for server

The e-trash application on the server part that has been designed can be operated on personal computer. The first activity done at this stage is to choose e-trash application that is installed on personal computer and choose menu monitoring, server function to monitor data of process result between user and result of process of janitor as other actor. The server also accesses the google MAPS API to see the longitude and latitude of the process that has been sent from the client application.

c. Form Design Officer

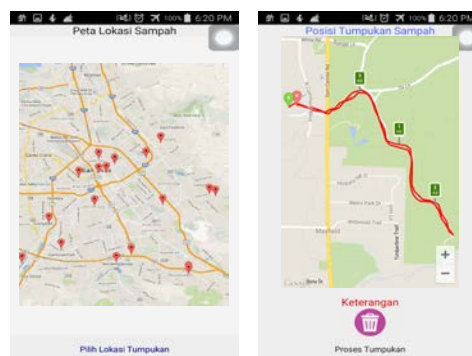


Fig 8. User Interfase for officers

Application on the part of officer function to select the result of user report to server which then forwarded to officer application which then can be seen in available MAPS. Officer selects the location of the garbage heap and the officer can see the lane by using google maps navigator.

5. CONCLUSIONS

Based on the results of this study it can be concluded that Modeling e-trash applications will facilitate easy

implementation of waste reporting system. The e-trash application model utilizes the development of information technology especially in Location Based services technology, model of e-trash applications can link data from mobile applications with data on the server.

ACKNOWLEDGMENTS

This work was supported by DP2M DIKTI.

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