QR-CODE IMPLEMENTATION IN BANDUNG GEOLOGY MUSEUM WITH MULTI-LANGUAGE AUDIO TOUR AND MAPPING BASED ON ANDROID

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ABSTRAK

Museum Geologi Bandung is the only museum of geology that exists in Indonesia, this makes the visitors came not only from the area around Bandung Bandung from the outside but also even overseas. The results of the interview with Mr. Danang P. H as a docent at the Museum of geology in Bandung that almost 1,500 people visitors come every day it is not outweighed by the limited number of guides, so the filing of information about collections in detail became less effective. The limitation of the ability of foreign language guides also becomes a constraint, because a special visitors (foreign) is also one of the visitors at the Museum of geology in Bandung. any good museum collection information as well as the layout of the room in the museum of geology is not processed with the use of the system but using the print media as a tool of visitors. In addition, the situation of the work of the museum party still difficulties in data collection or data processing visitors. The difficulty is due to the information in the can that is in a way so that the party's bookkeeper museum didn't get the information or reports quickly. Then to generate information that can be used as a reference in decision-making can be reviewed in the form of multiple dimensions. Applications can assist Parties in museum collections of information delivery to visitors in a more interactive site through search on the application and indicated in the form of 3D maps and audio.

Keyword : *Text to speech, Peta 3D, QR-Code, android, museum geologi bandung*

1. INTRODUCTION

The Museum is a place that stores historical items which can be utilized for the benefit of learning and tourism. According to KBBI Edition IV, "the Museum is a building used as a place for permanent exhibition objects that deserves public attention, such as history, art, and science, and also a place for storing antiques."

Museum of geology in Bandung is the only museum of geology that exists in Indonesia, this makes the visitors came not only from the area around Bandung Bandung from the outside but also even overseas. The results of the interview with Mr. Danang P. H as a docent at the Museum of geology in Bandung that almost 1,500 people visitors come every day it is not outweighed by the limited number of guides, so the filing of information about collections in detail became less effective. The limitation of the ability of foreign language guides also becomes a constraint, because a special visitors (foreign) is also one of the visitors at the geological Museum , Bandung.

To overcome the high needs of user will transfer information in fulfilling the purposes of work or entertainment. Then dibutuhkanlah a mechanism of information systems in an easy, fast, and practical that is by utilizing the technology Android smartphone that is capable of serving the needs of moving files through the http server for the transfer of information through applications that will be mounted on an Android-based smartphone. Information system is a set of components that connect, collect, process, store, and distribute information to support in decision-making and supervision in an organization.

2. IDENTIFICATION

Based on the background of the problems already described, there are several problems that are formulated into one formulation of the problem, namely how to build a QR-Code implementation of the system at the Museum of Geology in Bandung Using Multilanguage Audio Tour and Mapping-based Android.

3. AIM

The purpose of this research was to build this system with the following objectives:

1. Assist the museum in its delivery of information collections to visitors.
2. Assist General visitors, students or special (foreign) information in getting a more detailed collection objects with the delivery that draws in several languages, so information from the object collection can be up well on visitors.

4. RESEARCH METHODOLOGY

Research methodology is a set of rules, procedures, and activities that are used to assist the process of penelitina. The research methodology used is qualitative method. The qualitative method examining the perspectives of participants with strategies that are interactive and flexible. Qualitative research is aimed at understanding social phenomena from the viewpoint of participants. Thus the meaning or understanding of qualitative research is research that is used to examine the conditions of natural objects.

5. MUSEUM GEOLOGI HISTORY

The geological Museum was first established on May 16, 1929 CE, originally the museum serves as a storage area for the collection of geological investigation results carried out by the experts of the Government commanded by Netherlands on . After Indonesia became independent in 1945, the management of the geological Museum beradadibawah Center Djawatan Mines and Geology (PDTG/1945-1950). On September 19, 1945, the Allied forces command of United States and United Kingdom which diboncengi by Netherlands Indiës the Civil Administration (NICA) arrived in Indonesia (landing at Tanjungpriuk, Jakarta). In Bandung, they attempted to reconquer PDTG Office already controlled by the employees of Indonesia. Pressure launched by the Netherlands Army force Office PDTG moved to JL. Braga No. 3 and no. 8 Bandung on 12 December 1945. Office removals PDTG apparently driven by a suicide driver named Sakiman in order to struggle maintaining PDTG Office. At that time, the army of the Republic of Indonesia established the Siliwangi Division III Section of the mine, the power taken from PDTG. After the Office at Rembrandt Straat abandoned by officers of the army, Netherlands PDTG ever established in that place again the Office named Geologische Dienst. Everywhere the battle going on, then from December 1945 until December 1949, during 4 years Office PDTG terlunta-lunta moved from one place to another. The Government of Indonesia tried to save documents the results of geological research so must switch relocate from Bandung-Tasikmalaya – Solo – Yogyakarta, Magelang-new in Th 1950 returned to Bandung. In an attempt to save the document, the document on May 7, 1949, the head of the BUREAU of MINES and GEOLOGY, Arie Frederik Lasut, kidnapped and murdered Dutch troops and fall as kusuma in the village of Pakem, Yogyakarta. Upon his return to Bandung, the geological Museum is starting to get attention from the Government of Indonesia, in 1960 the geological Museum visited by RI's first President, Sukarno. Management of the geological Museum that had been under the CENTER of the DJAWATAN MINE and GEOLOGY (PDTG) renamed: Djawatan Mining Republic of Indonesia (1950-1952), Djawatan Geology (1952-1956), Center Djawatan Geology (1956-1957), Djawatan Geology (1957-1963), Directorate of Geology (1963-1978), Geological research and Development Center (1978-2005), the Geological Survey Center from late 2005 until now. Along with the changing times, in 1999 the geological Museum gets help from the Government of Japan totaling 754.5 million yen for renovation. After being closed for a year, the geological Museum was reopened and the opening was inaugurated on 20 August 2000 by Vice President RI that time Mother Megawati Sukarnoputri which was accompanied by Minister of mines and energy Susilo Bambang Yudhoyono Father.

6. SYSTEM ANALYST

System analysis aims to identify the problems that exist on the system and determine the needs of the system being built. The system analysis includes an analysis of the problem, the analysis of a system that is running, the software requirements specifications and needs analysis. System analysis is the decomposition of a system intact into component parts with a view to identifying and evaluating issues, so that the obtained solutions. System analysis is the most important stage, since errors in this stage will cause errors in the next stage.

7. BUSINESS PROCESS ANALYST

Analysis of system architecture is the process of describing the system to be built, the system will be built include:

1. The databases serve to store data that is used by this application, implemented using MySQL Database.
2. The computer, serves to manage the data from the application.
3. Smartphone (android), serves to make it easier for the visitors to get the information from the collection.
4. Server, functioning so that devices connected to computers and mobile phones to access data .

This application there will be a computer that will be placed at the tickets. While mobile phones (android) is given by the reservation the museum to visitors either public or foreign visitors.

The following system architecture in dna network architecture can be seen in the following image:

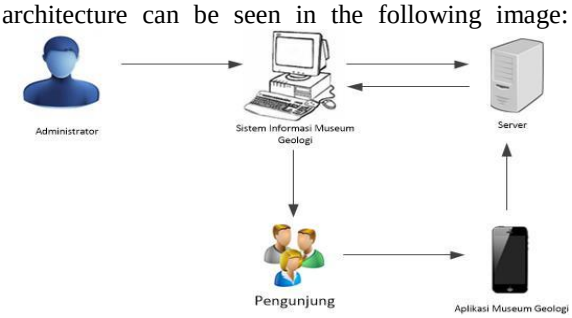


Figure 1 Business Process Analyst

Business process analysis is a very important early stages in building a software in a company or agency. The following is an explanation of each of the business processes to be built on such an application.

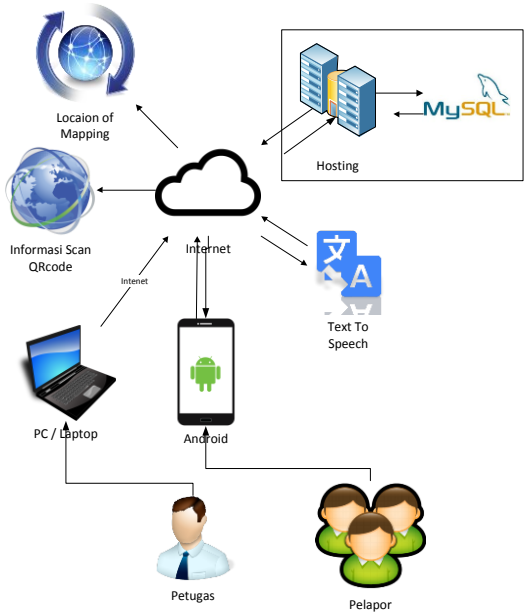


Figure 2 Network Architecture

8. NON FUNCTIONAL REQUIREMENTS ANALYST

Non Functional Analysis is the analysis required to determine the specification of the application needs. This specification also includes elements or any components that are required for the application to be built up to the application to implement. This needs analysis also determines the required input specification in the system, the outputs to be generated and system process that is needed for processing the input to produce a desired output . On the system of non-functional needs analysis also described analysis on hardware (hardware), software (software) and the user (user) as a material analysis of the shortcomings and the needs to be met in the design of the application to be applied.

9. SOFTWARE ANALYSTS

Analysis of software/software that are intended to find out the specific device that is running is used in PT Surya Toto Indonesia does not yet exist. while the software needed to run the system adalalah as follows:

1. Operation System Windows 7 Professional 32 Bit / 64 Bit
2. Web server XAMPP 1.7.3
3. MySQL connector
4. *Code Editor* : *Sublime Text* and Eclipse
5. Android SDK

10. USER ANALYSTS

This analysis aims to know the actors involved in the running of the application. Generally have 2 users, each user has a different facility. The specification of user applications, among others, as follows:

1. Administrator
   Administrator is a user who has the right to manage data Geological museum.
2. Visitors Visitors is a user who has the right to obtain information regarding the museum using an android phone. Local visitors can only use text to speech language Indonesia while visitors from abroad can use multilanguage bahasa Indonesia and English.

11. USE CASE DIAGRAM

Use case is construction to describe how the system looks in the eyes of the user. The target use case modeling such as defining the functional needs and operational systems by defining usage scenarios.

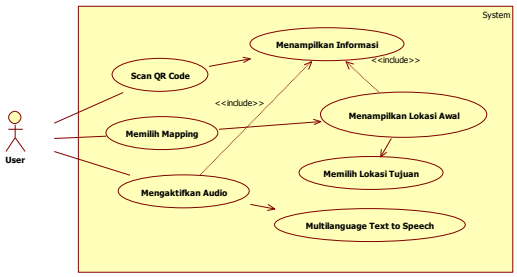


Figure 3 Usecase Diagram

12. DESIGN

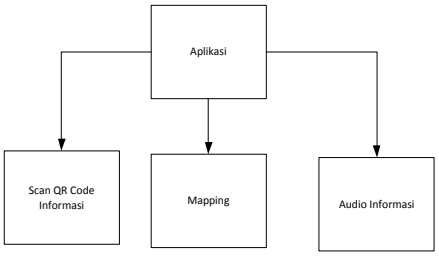


Figure 4 Menu of Application

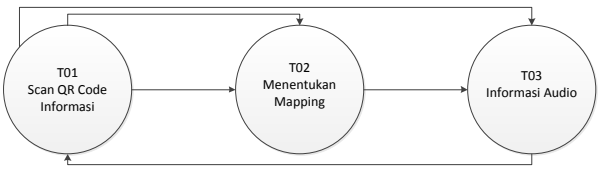


Figure 5 Semantics Network

13. RELATION SCHEME

The following is a schema relationship QR-Code implementations of applications at the Geological museum in Bandung using multilanguage audio tour and mapping can be seen in the following

image:

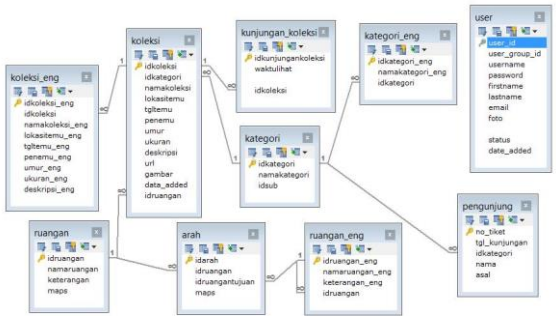


Figure 6 Relation Scheme

14. HARDWARE IMPLEMENTATION

No	Hardware	Specifications
1	Prosesor	Intel(R) Celeron(R) CPU 1007U @ 1.5 GHz (2 CPUs)
2	VGA	512 MB
3	Memory	RAM 4GB DDR3
4	*Harddisk*	320 GB
5	*Monitor*	14 inchi
6	*Keyboard*	Standard Port USB / PS2
7	*Mouse*	Standard Port USB / PS2

15. SOFTWARE IMPLEMENTATION

No	Software	Specifications
1	Sistem Operasi	Windows 7 32bit
2	*Web Browser*	Google Chrome Versi 43.0
3	*Android*	Jelly Bean 4.3.1

16. BLACKBOX TESTING

Functional testing is used to test the new system is a black box testing. Black box testing focuses on the functional requirements of the software consists of a test scenario, cases and test results, and the conclusion of testing.

Menu	Menu Item	Testing
Login	Username and Password Verification	*Black-box*
	Forgot Password	*Black-box*
Master Data	Collections	*Black-box*
	Category	*Black-box*
	Visitors	*Black-box*
	Room	*Black-box*
	User Management	*Black-box*
Traffic Processing	Traffic's visitor	*Black-box*
	Traffic of visitor's collection	*Black-box*
Setting	Backup and Restore Database	*Black-box*

17. CONCLUSION

The conclusions of the study entitled: "implementation of the QR-Code on the Geology Museum in Bandung Using Multilanguage Audio Tour and Mapping-based Android" is as follows:

1. This application provides more choice to the visitors of the museum to know the layout of the museum's collections and their origin
2. On behalf of the museum if there is the addition of a new collection of easy to register in system.
3. application can help General visitors, students or special (foreign) with the english text to speech and language information in getting a more detailed collection objects with delivery, so that the information from the object collection can be up well on visitors.

18. SUGESTION

1. The research is expected to be able to apply online at the website of the front end.
2. Mobile-based applications created for Admins, so it can be monitored at any time by the Manager.
3. Created online ticket reservation application so no longer need to perform queue.

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