

Games and Multimedia Implementation on Heroic Battle of Surabaya an Android Based Mobile Device Application

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Abstract. Number of users of who use mobile devices and other handheld devices is increasing (such as smartphones and tablet computers) to increase rapidly. This phenomena has changed the lifestyle of many people, especially in the ease of access to information. For example, access to any business information, political information, tourism information, as well as educational information. Education has also entered a new era, where books and other teaching materials, are not presented again using paper media but also in electronic form. Student can easily access that electronic information using computer/laptop or smartphone/tablet PC. So now, learning can be delivered in a more interesting and interactive media and model.

It also become new challenges for education, especially in teaching nation history, where education in paper material is no longer quite interesting, so new teaching media is required, that more interesting and interactive to the student. At this time, there are not many applications on mobile devices that explore education especially on heroic history of Indonesia. While the education of heroic history become more necessary today, especially for young people.

To answer this challenge in this research, we like to build a application software based on android mobile devices that contain education the history of the heroic battles 10 November 1945 in Surabaya. The application will provide the information of battle history, and also games and multimedia interactive such as sound, video streaming that built on android based mobile device. With this educational applications we expected that everyone especially young people can learning the knowledge about the history of the heroic battle 10 November 1945 Surabaya in the mobile device based on Android in interactive educational applications that provide a thorough understanding and fascinating history of the events surrounding the battle. And also explore the historic sites in Surabaya and found fascinating city of Surabaya.

Keywords: Android, Games, Heroism, Multimedia, Surabaya

1. Introduction

Number of users of who use mobile devices and other handheld devices is increasing (such as smartphones and tablet computers) to increase rapidly. This fenomena has changed the lifestyle of many people, especially in the ease of access to information. For example, access to any business information, political information, tourism information, as well as educational information. Education has also entered a new era, where books and other teaching materials, not presented again using paper media but also in electronic form. Student can easily access that electronic information using computer/laptop or smartphone/tablet PC. So now, learning process could deliver in a more interesting and interactive media and model.

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Here, we saw an opportunity to present the heroic values in an application for mobile devices based on android in the interesting and interactive way. We like to present information especially related to the history of epic heroic battle in the historic events that occurred on 10 November 1945 in Surabaya. For example the information about location of the historical battle with location photo gallery, include with games (such as puzzle, quiz, finding object) and multimedia interactive implementation (such as sound, video streaming). Therefore, with this application we expect that many people would interest to access information about the historical places in Surabaya and to explore these historic sites in Surabaya, as a memento of the heroic battle 10 November 1945.

This application builds in Indonesian and English, and enriched with multimedia content (text, sound, music, video, animation) and quiz game about historical event of 10 November 1945. With an attractive and interactive application, we expect that these applications will be widely used by mobile device users in Indonesia for teaching history lesson and provide a thorough understanding and fascinating history of the events surrounding the battle of 10 November 1945.

These applications will be constructed using Java programming language, IDE Eclipse, JSON, SQL Lite database on Android, and the MySQL database on the server and using the Google Map API and GPS.

2. Related Works

Android application as an enhanced or aided learning on educational has done in many ways. Such as to deliver learning material [11, 3], to deliver test online and quiz [6, 8], class attendance report [5], etc. Another research also conduct to create computer application to enhanced learning process such as Nurazwan [9] that build 2D animation (animated multimedia) presentation to attract children's interest in learning history. This 2D animation tell story about Antenom heroism (Malay) in fighting the British army. The animation create in the website and on the compact disk that distributed on the schools.

In other hand, learning on Indonesian history and the aspects of heroism have been try to explore in the various forms of media, like comics [9] that try to visualize heroism of Pattimura that design for primary school children. Putu Suardi [10] also tried to build 3D media on monuments building as the learning media. It shows the moments of heroic battle in the Dutch colonial period that occurred in the Bangsal Bali area. Meanwhile, Sabastian [13] tried to design an encyclopedia of 30 Indonesian independence heroes. This encyclopedia increases the value of history education for the public, especially young people to increase appreciation of the national hero. However, until now, still a few applications that explore the history of Indonesian patriotism. Such as historic heroism buildings, locations, artifacts, etc.

From the available references, we conclude that the exploration of Indonesian heroism history not yet been explored using mobile device applications as the media. Expecially with interactive and educative games also with multimedia feature (text, sound, movie). So, in this research we try to create applications that run on mobile device that we hope this application might interesting for to young people.

3. Battle of 10 November 1945 in Surabaya [2, 4]

The battle of Surabaya at 10 November 1945 started when Captain Huijer, Dutch Navy arrived in Surabaya. This army have task to takeovers of Japanese army that had lost world wars 2. However, under force by Indonesian army led by Sudirman and Doel Arnowo, Japanese army handed their weapons to the Indonesian army that called Badan Keamanan Rakyat (BKR). Therefore, on 1 October 1945, a fight begins to happen between Duchth Navy and Indonesian army. Indonesian begins to attacked airfields on Morokrembangan and detention camp on Darmo. The Japanese army headquarters (Kempetai) also surrounded by Indonesian army. This fight ended after Captain Huijer arrested by Indonesian army.

To respond this action, on 25 October 1945, allied force led by British army landed at Tanjung Perak harbor in Surabaya. This army led by Brigadier General Mallaby along with the 49th Brigade that contained six thousand elite troops. Mallaby then send one platoon led by Captain Shaw to save

Captain Huijter. Allied forces also took over the office of railways, telephone and telegraph centers, Darmo hospitals, and others vital building. The great battle was inescapable between six thousand British elite troops with around one hundred thousand soldiers and Indonesian people. Due outnumbered, Mallaby asked president Indonesia, Soekarno, to persuade Indonesian army to stop the battle. Sukarno, Hatta, and Amir Sjarifoeddin finally come to Surabaya to stop the battle. Then a cease-fire occurred between both armies.

However, an incident happened. On 30 October 1945, Buick that carrying Brigadier General Mallaby intercepted by Indonesian militia group when going to pass the Red Bridge (also known as Jembatan Merah). The incident ended with the death of Brigadier General Mallaby. Because of this incident, Lieutenant General Christinson, commander of Allied forces in the Netherlands East Indies (AFNEI) send fifth Infantry Division complete with weapon and tanks to Surabaya under the command of Major General Mansergh. This army approximately carried fifth teen thousand troops. On 9 November 1945, the British issued an ultimatum to Indonesian army to surrender all their weapons at 10 November 1945. Then at 9 November 1945 23.00 PM, Soerjo, governor of Surabaya announced his decision through radio that Surabaya will fight until the end. So, on 10 November 1945 the heroic battle in Surabaya began.

The battle happened on the next 3 weeks. In late November 1945, the entire city of Surabaya has fallen into the hands of Allied Force. Indonesian fighters that still alive join the refugees fled from Surabaya. The Indonesian army then created a new line of defense at West site (Mojokerto City) until East site (Sidoarjo City). This heroic battle triggered the resistance in many areas in Indonesia. Right now, this event celebrated as hero day on every 10 November.

4. Android

Android provides an open platform for developers to create their applications. Android is built using object oriented, where the constituent elements of the operating system in the form of objects that can be reused / reusable. Android also use an operating system based on Linux for mobile devices that includes an operating system, middleware and applications. The architecture of the Android Operating System and its elements can be illustrated as in Figure 1. Android architecture consists of four layers of components. At the beginning, Google Inc. bought Android Inc., newcomers who make software for mobile phones/smartphones. Then to develop Android, Google formed the Open Handset Alliance, a consortium of 34 hardware, software, and telecommunications companies, including Google, HTC, Intel, Motorola, Qualcomm, T-Mobile, and Nvidia [12].

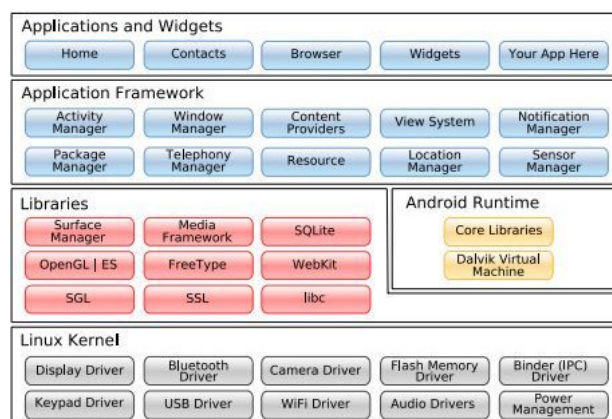


Figure 1. Android Architecture [12]

5. JSON (JavaScript Object Notation)

JSON or JavaScript Object Notation is a code for the exchange of mission data in XML format. The format is quite simple JSON because it will understand by people easily. JSON JavaScript programming language, ECMA-262 edition was built 3 Based on December 1999 common, CA, uses a style used by C programmers, because JSON is not affiliated in any programming language standard + C #, Java, JavaScript, Perl, Python and others [7].

6. Implementation and System Testing

The implementation and system testing of this application is apply using various types and specifications of mobile devices such as the Sony Xperia Z, Sony Xperia Arc S, LG G3, and the Samsung Galaxy Note S6 to test the reliability of applications in a wide range of devices.

The application, contain with history of battle on Surabaya and also provide with photos gallery about Surabaya battle history and also the existing Surabaya (can be seen in Figure 2). User can show images and stories regarding the history of the battle of Surabaya from an existing location.

The application, also provide multimedia interactive like sound (Figure 3) from history of battle on Surabaya for example like Bung Tomo (one of Great War hero on that battle) speech on 10 November 1945.



Figure 2. Photos Gallery on Android

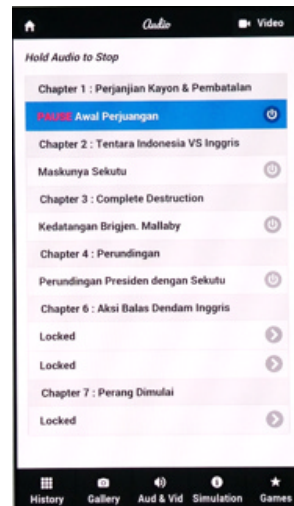


Figure 3. Sound Features on Application

To attract and give the user an overview of this condition of the current battle this application also have movie features which will provide information (in video media) about the battle 10 November 1945. This video is also provide testimony from the fighters who fought at that time (as can be seen on Figure 4 and 5).



Figure 4. Video Multimedia on Application



Figure 5. Video Multimedia on Application

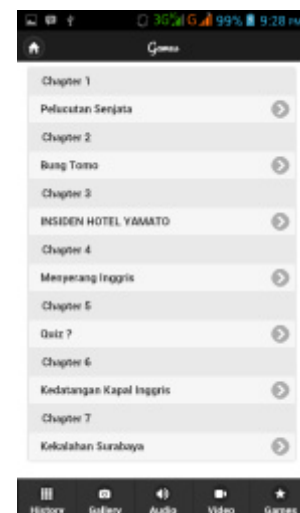


Figure 6. Games on Each Chapter

This application also provide by games feature based on the battle story to attract user to use this application. Each of chapter will provide with mini games as can be seen on Figure 6. This games is expected to attract users, especially young people to use this application. Available games such as object finding (Figure 7), puzzle (Figure 8), and quiz (Figure 9).



Figure 7. Object Finding Games

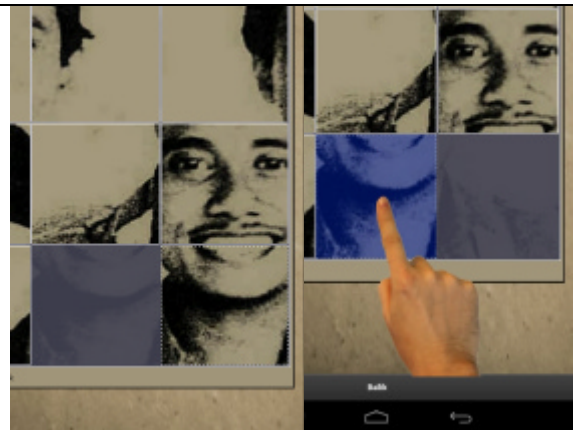


Figure 8. Puzzle Games

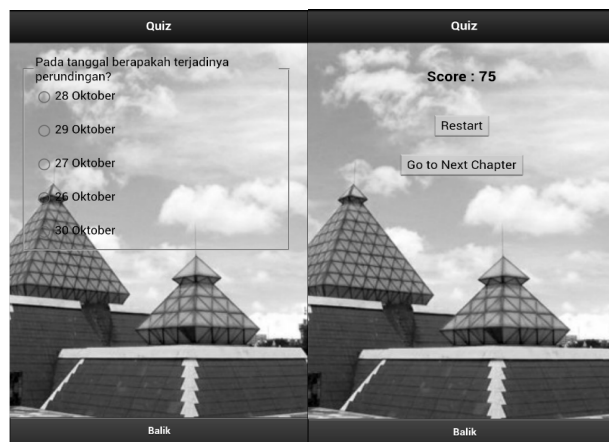


Figure 9. Quiz Games

We tested this application to 200 student in various age (5 to 17 years old) and various background of education (elementary, junior and high school). All of the respondent very interest in sound (particularly on Bung Tomo speech). They also very interest on image and movie that provide by this application. The respondent that have age 5-10 years old more interest in object finding game and puzzle, but respondent age 11-17 years old more interest in object finding game and quiz. Their opinion is that the more interactive game that they must play, the more interesting is the game. All the respondent though that this application very interesting to learn history especially with interactive games and multimedia.

7. Conclusion

From this research process, we deduced as follows:

The application that has been made can perform all the features such as image gallery, games, movie player, and sound player. This features also can run well on many mobile device without any technical problem. Based on testing to 200 respondents a variety of ages (5-17 years old) and educational backgrounds (elementary, junior and high school), we found that the content of Games and Multimedia on this application very interest to user especially on age 5 to 15 years old. We also found that 87% of respondents have the opinion that this application is very interesting and useful for the city of Surabaya.

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