Android Radio Streaming Apps for Songgolangit FM Ponorogo

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Abstract. Songgolangit FM Radio is one of the information media in Ponorogo society. The broadcast signal has limited covered areas because of the geographical condition of Ponorogo. Then, the other media is needed to solve a problem. This research aims to expand the broadcast area using Android radio streaming apps. This research used the waterfall steps. The test using black box shows that the apps running well and have no error. The feedback from Songgolangit FM peoples expected that these apps hope could expand new user with specially to Android users. These apps can be download by all Android phone through the Google Play Store (https://play.google.com/store/apps/details?id=com.amoled.radiosonggolangit&hl=en). On the next research can measure the effectivity of radio streaming Android apps. Besides, future research also can develop its apps in other operating systems such as iOS, Tizen, Hongmeng and Blackberry mobile apps.

1. Introduction

The Songgolangit Radio is a radio located on Jalan Halim Perdana Kusuma Number 12 Ponorogo. Radio Songgolangit FM broadcasts at Frequency 99.2 FM. This radio which has the motto "Information and Solution, Pride of the Ponorogo Radio" hopes to become the proud radio station of the City of Ponorogo and the people of Ponorogo. With a varied program to entertain the entire Ponorogo community. Radio Songgolangit FM also gives a warm feel to listeners by providing services through SMS and social media [1].

In the era of technology 4.0, Songgolangit FM radio still has some problem. One of them is the limited broadcast area. It can happen because Ponorogo has many various highlands and some mountains. Its geological condition can block the broadcast signal. Songgolangit FM already has web-based streaming radio, but it's still felt lacking because most Ponorogo people use Android phone. This research offers a solution using the Android mobile streaming application. Android was chosen because in 2017 have 73% of Global mobile devices use Android [2].

Many previous types of research to develop radio streaming. The first from Hatta, Gusfiannur, and Fahrul is building Android-based radio streaming application "TDA Samaradio" is expected to be a media to share information that can help members to find out various knowledge about entrepreneurship [3]. The secondary research from Said using streaming application for mobile devices using Java 2 Micro Edition (J2ME) has been successfully simulated, but if an experiment is conducted on mobile phones that have Java and GPRS facilities, often the connection to the server fails even if Java is successfully downloaded [4]. The third research from Simatupang is web-based radio streaming application using the website is show buffering will occur if the internet connection and or shout cast server conditions are unstable [5]. The fourth research from Maulina and Kurniawan was building radio

streaming application using the website will be used by Suara Bangkalan FM radio connoisseurs so as not to be obstructed by geographical and weather factors [6].

This research aims to expand the broadcast area using radio streaming Android apps. Its apps expected able to increase the number of listeners. Its apps hope to help listener, especially users in an area with many various geological problems. Besides, this application is expected to increase the number of listeners with an Android phone.

2. Methods

The Android radio streaming apps used for the system development Waterfall System Development Life Cycle. The waterfall model where this illustrates a systematic and sequential approach to software development, starting with the specifications of user requirements [7]. The Waterfall model phases consist of 5 stages, as shown in Fig. 1.
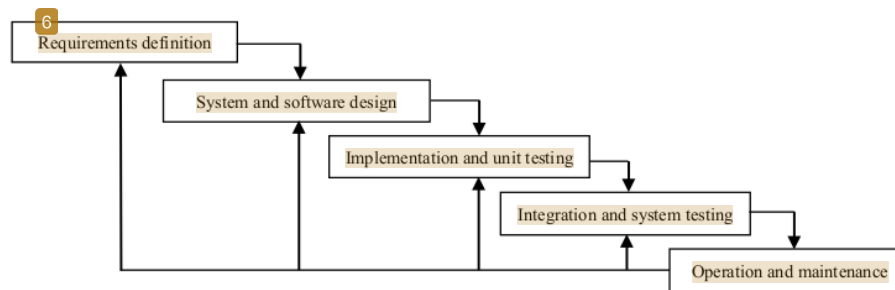

Fig. 1. Waterfall System Development [7]

2.1 Requirements definition

The first stage is requirements definition is performed the service, limitation, and objective. It also identifies a problem related to data of how many the radio in Ponorogo used Android streaming. The requirement in journal source results shows that radios in Ponorogo, on average, have converged media to support radio broadcasting activities. New media used are websites, radio streaming, android applications, YouTube and social media (Facebook, Instagram, BBM and WhatsApp's) [8].

But in fact, Songgolangit FM radio does not have a radio streaming mobile application. At the interview with them, they wanted the Android radio application. According to that case, Ponorogo people have a smartphone, especially Android. In another case, Songgolangit FM have many problems such as the basic lack of knowledge on all employee, lack of room facilities, have no IT division, etc.

2.2 System and Software design

The locations studied were Radio Songgolangit FM in Jalan Halim Perdana Kusuma Number 12, Siman Subdistrict, Ponorogo Regency. Data analysis and processing to build Android apps at the University of Darussalam Gontor Ponorogo. Tools in this research are using computer hardware and software such as Java language programming, Android Studio, and XML language.
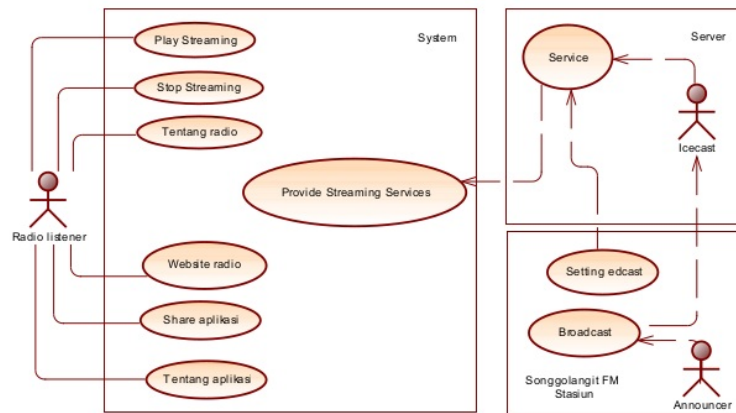
Fig. 2. A use case diagram for Songgolangit FM

Based on fig. 2, in the Songgolangit FM application, users can play or stop streaming. Besides, user can view about Songgolangit FM, website Songgolangit FM, share apps, and about apps. While edcast can play playlists by specifying the settings beforehand which will be sent to the Ice cast service which will then be broadcast and can be received through the application. In this research only explain about making applications from radio listeners

2.3 Implementation and Unit Testing

The results have appeared in Fig. 3 (c) is the main page that contains four navigation menus. It is a home, about radio, website radio, share apps, and about apps. Since the server is on, the user can listen to the broadcast program through the streaming. It will display with play and stop command. So, the user can stop and continue the broadcast streaming as needed.
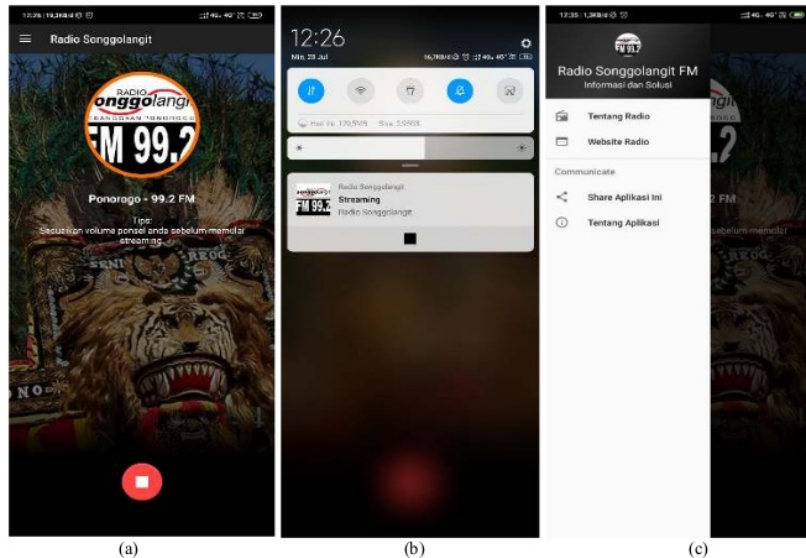

Fig. 3. Songgolangit FM Android radio streaming apps interface view[7][7][7]

Based on Fig 3. (a) shows that the application is online. Fig 3. (b) While the apps are online also can see in the Android interface on the setting menu. It also shows that the apps are running in the background. The user can stop the broadcast streaming through the Android interface on running background menu. Fig 3. (c) the share menu button can be used by users who want to share Songgolangit FM applications with other users through various social media, such as email, Facebook, Twitter, Instagram, etc.

2.4 Integration and system testing

If all parts and requirements for system specifications are met, the integration stage can be continued. Data that has been displayed by programmer page will be visible directly in Google Playstore. In this part of the system, Android radio streaming apps are can be tested directly by the user.

2.5 Operation and Maintenance

In the last part of this Android radio streaming apps system are operation and maintenance. All data starts from the information about the company until social media pages have shown directly. Furthermore, Songgolangit FM management can try and see instantly so that the data displayed is valid. So that the information on these apps can be useful for the community, especially user in Ponorogo area.

3. Result and Discussion

This research projection of Android streaming mobile apps for Songgolangit FM divides into two main page functions. The first menu is the main menu of these apps, namely the play button and stops streaming. The second menu is general information consisting of four buttons. The button is about Songgolangit FM radio, share applications, about applications and the Songgolangit FM radio website.
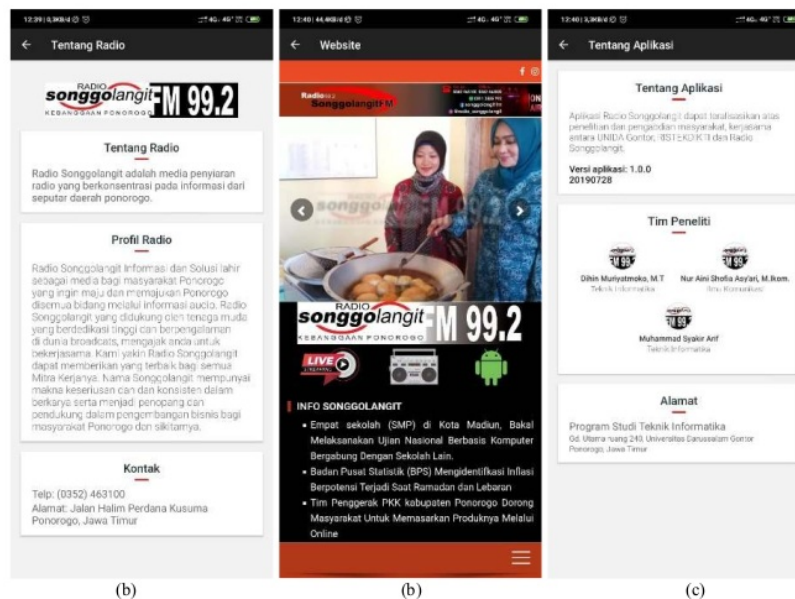

Fig. 4. Songgolangit FM Android radio streaming apps interface view by the listener[7][7][7]

In Fig. 4 (a) is a menu about radio contains profile information, addresses, contacts, and a glimpse of Songgolangit radio. In Fig. 4 (b) is website menu, if the user selected this button, it will go directly

to the Songgolangit FM radio website address, https://www.songgolangitfm.com. In Fig. 4 (c) is about apps contains version and date of this apps, developer team and developer address.

(a)   (b) [9]   (c) [10]   (d) [11]   (e) [12]

Fig. 5. Songgolangit FM Android radio streaming apps interface view by listener

The functional test results with black box show that this application runs smoothly and without errors. The results of the response from Songgolangit FM give the impression that hopefully, this application can increase the number of listeners. When compared with other radio streaming this application has features that are not much different. The advantages of this application compared to others, is almost non-existent because all the applications have the same function, namely as an Android-based streaming media.

In Fig. 5 (a) is an Android application belonging to Songgolangit radio Ponorogo 99.2 FM led by Setyo Budi. In Fig. 5 (b) radio Andika Kediri 105.7 FM led by Rofik Huda [9]. In Fig. 5 (c) Elshinta radio Jakarta 90.0 FM led by Iwan Haryono [10]. In Fig. 5 (d) Romansa radio Ponorogo 98.8 FM led by Zahtul Azyhary [11]. In Fig. 5 (e) Radio Suara Surabaya 100 FM, led by Edy Prastyo [12]. It four radios, Andika FM and Suara Surabaya FM radio, were examples and comparative studies in the development of Songgolangit radio management [13].

4. Conclusion

The research produces an Android radio streaming apps for Songgolangit FM with have no error and running well. The apps can be download on Google Playstore with URL Address https://play.google.com/store/apps/details?id=com.amoled.radiosonggolangit&hl=en. Its apps expected to help Songgolangit FM increase the listener that have an Android phone. In addition, its apps expected to help the user in various highland and mountains area. Next step, the researcher can try to develop the similar apps in a different operating system, such as: iOS, Tizen, Hongmeng and Blackberry mobile phone. Next research also can continue to measure how far this apps can be effectively used by Ponorogo society.

Acknowledgements

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