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Developing Mobile App of English Pronunciation Test Using Android Studio

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Abstract*—Pronunciation is one important aspect in English speaking skills that will directly observable and known in English. By having a good pronunciation will make it easier to understand when the other person is talking about. Pronunciation can be checked by browsing, on certain conditions, the solutions offered less successful due to several factors, such as: the Internet connection is not stable, difference ability on hearing the audio while listening, etc. In the real case, there are samples of students Multimedia Broadcasting Electronic Engineering Polytechnic Institute of Surabaya that have a lot of error in pronunciation. To determine the student's level in pronouncing the pronunciation, it can be done by testing. Based on these problems, the proposed by developing a mobile pronunciation test is to help students in checking, and guiding students to pronounce English pronunciation correctly.

Keywords—pronunciation; pronunciation; test mobile applications; mobile

I. INTRODUCTION

In learning English as a foreign language in Indonesia, there are so many problems, which are faced by students that become obstacle in developing their ability in English. One of common problem, which familiar enough is pronouncing pronunciation in speaking skill [3]. Pronunciation is one of part of English speaking skill, which is directly known and observed well in English. When someone speaks English the audience will directly identify the way he pronounce or speak. When someone makes mistakes in pronouncing pronunciation, it can be easily known or understood by the audience. Pronunciation is one of the most important part in learning English [1]. Pronunciation is the right way to pronounce English pronunciation. Besides, pronunciation can be used in speaking English.

To speak English very well can be understood by the audience, it needs good ability in speaking English such as good pronunciation, so that there'll be no misunderstanding in understanding the conversation.

In a real case of education sector, there is sample of multimedia broadcasting technology students, who have mistakes in pronouncing pronunciation. It is proven by the result of research as a pronouncing test to 100 audiences from multimedia broadcasting technology students.

From 150 words, there are 107 wrong spelled words, so the right pronouncing presentation is 29 %. Multimedia broadcasting technology is connected with English because it helps students to develop and apply their knowledge such as photograph, making film, produce music, etc. So it needs good ability in English.

To have a good pronunciation, it can be done by checking the pronunciation with some ways such as browsing tutorial of video conversation between native speakers on Youtube, using Google voice on Google translate, and using English dictionary on android. Native speaker is person who was born from English countries, so he uses English as a daily language, like: Americans, UK, and Australian.

In some condition, the solution that is offered can't work well in checking pronunciation, it takes too long time because of bad internet connection. In the other hand, there is no it only provides audio, meanwhile intensity of hearing each person is different, it depends on human understanding and intensity on hearing conversation between native speakers.

To check of the students in pronunciation needs error checker in pronunciation that can be done by doing test. So that it needs to develop of mobile pronunciation test to help students on checking, and providing the students the right way to pronounce the pronunciation.

Mobile phone is this last decade, is used in every daily activity to replace the used of computer such as reading documents, editing the documents, playing game, browsing, etc. Mobile is chosen because it's easier to carry and it has longer battery life than computer (laptop/netbook) [2].

II. LITERATURE REVIEW

A. Teaching English Pronunciation

The most important thing in learning English-pronunciation is by knowing learner's pronunciation level and learner's character. To improve the pronunciation skill, learner can start to learn it earlier. In youth age, brain rapidly develops and proceeds information well besides has a long-term memory. Another way to gain pronunciation skill is by creating a good environment for learners.

They will have anxiety to follow the flow of learning, which is given by teacher, on the other hand teacher can add communication lesson to let the learners speak each other, or perhaps listen to the English-conversation[4].

B. *Commonly mispronounced Englih words by EFL students*

Mother tongue and dialect influence one of the cause of mispronounced in English. Another one is bad pronunciation, fluency, and grammar. In some region in the world, there is no word or sound in it common alphabet, which is used as a daily language.

As a sample, there are some students in China, which have difficulty in pronouncing polysyllables r and l. Sometimes either they reduce or they put extra r and l in the beginning, middle, and the end of the words. For example: result becomes "resut", curl becomes "cur", and everyone becomes "everyone" [6].

C. *Computer Assisted English-Pronunciation Learning*

Computer has been used since few years ago, especially as a media for language learning. In this modern era, computer has been developed as the better learning media. This invention can help students to learn language by them selves. Students can learn as an individual or groups[11]. They can stimulate their own way to learn language, for example: choose random words then find and understand the meaning of it. They also can learn by keeping guess among their friends to find and understand new vocabularies[9].

D. *Mobile apps for learning English Pronunciation*

Mobile phone is used everyday in everyone's daily life. Mobile phone can help learners to ease on learning pronunciation. There are some features such as correction, interesting user interface, clear guidance that help learners to do self-learning. Learners don't need teacher to supervise them.

Learning pronunciation using mobile phone will help learners, because it eases learners to learn and practice pronunciation everywhere and anywhere[8].

Learners can develop themselves learning independently. Learning using mobile makes learners not to realize that they are learning. This learning way is effective to improve their skill on learning language, especially English[10].

E. *Related Research*

Application of English pronunciation test has been developed by some researchers. In general, the system which developed by those researchers has relatively same features.

The system that we created were adapted from previous work of app English pronunciation test. Both of these systems are used in mobile, which uses android operating system.

For the development of mirror display and screen monitoring, there are some references of android applications like tenses and pronunciation application for android using app inventor [7], and learning vocabularies and pronunciation application based on multimedia for elementary students[5].

On tenses and pronunciation application for android using app inventor[7], the user interface is less attractive, it didn't provide correction, the guidance is less clear, and there is no back sound of music in the application. Users might be bored and confused on learning using this one. In the other hand, on learning vocabularies and pronunciation application based on multimedia for elementary students[5], the user interface is less attractive and the features are limited on showing only plants and animals. Users might be confused. Our system allows the users to learn pronunciation by pronouncing provided words based on survey. If the users are wrong in pronouncing, users can learn the right way to pronounce it. Users also can know the result either how many wrong words they pronounced or how many right words they have pronounced. In the beginning of the application there is back sound music.

III. METHOD

At this point will be discussed on the system plan including hardware planning, software that works for system, the implementation and integration of system.

A. *Hardware*

This project needs hardware to make the system works. A mobile phone is used as a device to run the application. We target android as the operating system of the mobile phone.

B. *Implementation and Integration*

At this point, it explains the implementation of the system and also the integration of facebook into the system. This explanation part includes and system design.

User is the one who uses the application. User will use the application through android by pronouncing provided words.

Then the user voice will be proceeded in speech analysis process. In the process of speech analysis, the sound produced by the user is processed to match the voice on the database by matching the model of speech, and the familiar grammar of word that pronounced.

If the pronunciation is true, then it will continue as the same process in the beginning. But if it is wrong, then it will be proceeded by speech analysis to match the user's voice on the database, to match the model of speech and familiar grammar of word that is pronounced. (see fig. 1.)

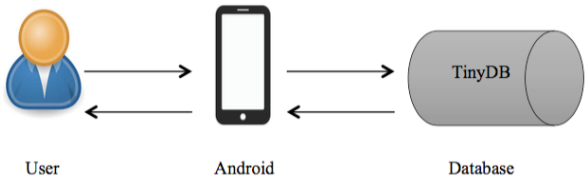

Fig. 1. Design of the application system.

First, before starting the application, make sure that user has an internet connection.

User can get an internet connection from wifi or mobile data. Then user has to login using his facebook account.

So, we can know that this application is integrated with Facebook API. After that, user can start the game (level 1).

Then, after the word, which must be pronounced is shown, press voice button and try to pronounce it. The user's voice will be processed and being checked by the system. If it is correct, user can continue to the next word. If it is wrong, user should press hint button to know the right correction, then user can go on to the next word. It proceeds the same way until the 20 words, then it is checked either the 20 words have been shown or not. If it is done, user can start the next level. (see fig. 2.)

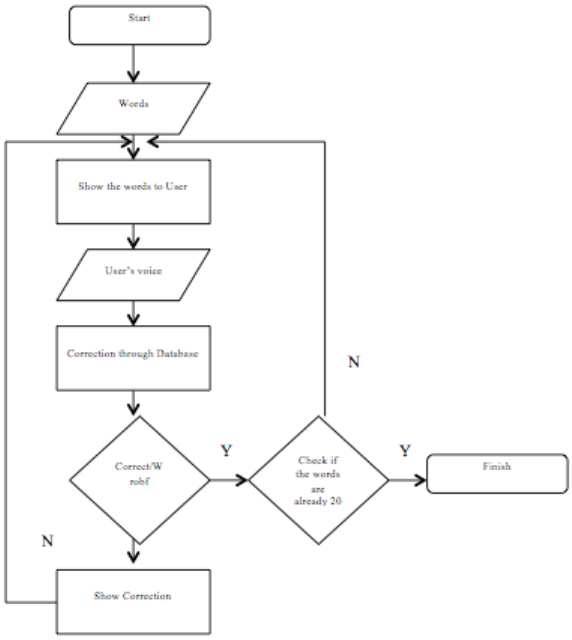

Fig. 2. Design of system workflow of the app.

Speech recognition is developing technic and system, which makes computer to accept input of spoken words. This technic is possibly for device to recognize and understand spoken words by digitalizing words and adjusting digital signal with certain patterns, which is stored inside device. (see fig. 3.)

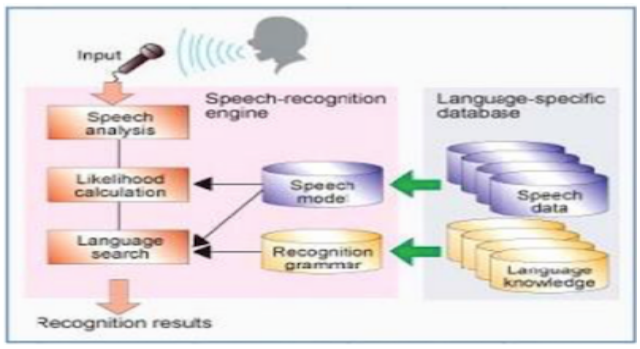

Fig. 3. Speech recognition process

Implementation of English pronunciation test in this mobile consists of login interface, menu interface, welcome interface, level interface, shown words interface, analyzed user's voice interface, result of analyzed user's voice either correct or not interface, correction interface, and scores interface. To start the game, users should login using their facebook account. In the last of game, users can know their score besides can share the scores on facebook.

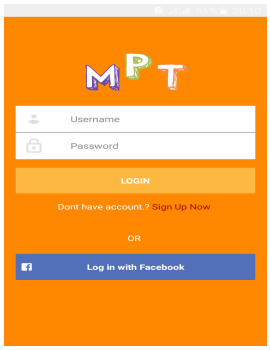

Fig. 4. Example of login interface of the app

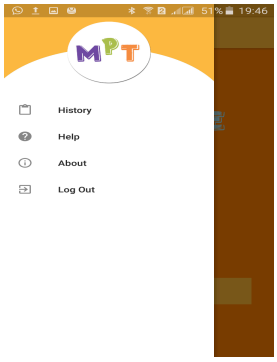

Fig. 5. Example of menu interface of the app

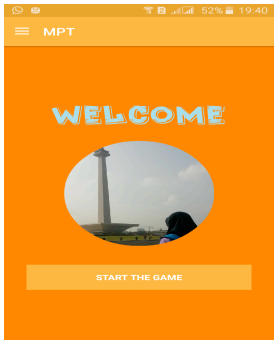

Fig. 6. Example of welcome interface of the app

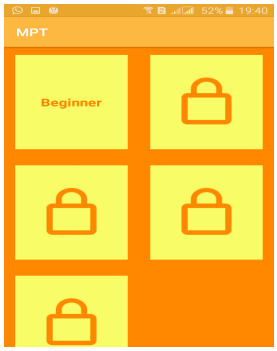

Fig. 7. Example of level interface of the app

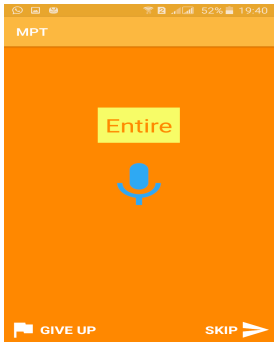

Fig. 8. Example of shown words interface of the app

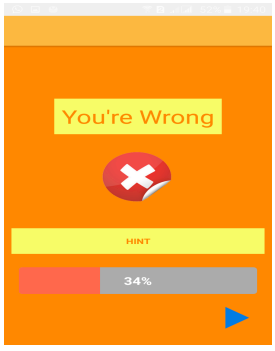

Fig. 9. Example of analyzed user's voice interface of the app

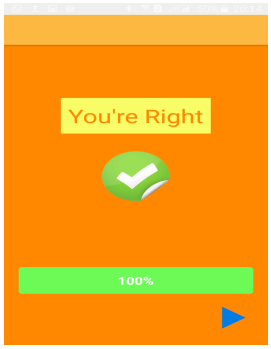

Fig. 10. Example of result of analyzed user's voice interface of the app

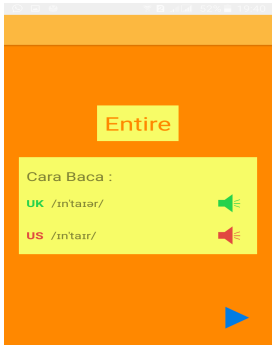

Fig. 12. Example of correction interface of the app

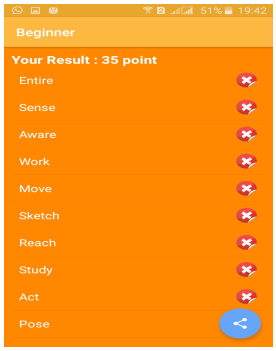

Fig. 13. Example of scores interface of the app

IV. RESULT

At this section will be done testing and analyzing the Quality of the system that have planned and developed in the previous section. The Test performed on the easiness in operating the application, user interface, and the usefulness of the application.

A. Testing the Application by Expert of System

First begin the test by running the system. After then, the system work and tested by expert review through questionnaire to get the data. This case intended to determine the usefulness of navigation, easiness in operating system, system workflow, content placement, and clear information about the application. The test will be done by 1 expert review of system.

TABLE I. Result of System Application Testing

Aspects	VG	G	B	VB
Usefulness of Navigation	V			
Precision of Navigation		V		

[a] *VG= very good, G= good, B= bad, VB= very bad*

TABLE II. Result of System Application Testing

Aspects	VG	G	B	VB
Easiness in Operating App	V			
The use of Understandable Language	V			
Readable Text		V		
Consecutively of system workflow		V		
Content Placement		V		
Clearance Guidance		V		

[b] *VG= very good, G= good, B= bad, VB= very bad*

B. Testing the Application by Expert of Design Review

First begin the test by running the system. After then, the system work and tested by user through questionnaires to get the data. This case intended to determine the lay-outing style, color for background of the app, and typography that is used in the application. The test will be done by 1 expert review of design.

TABLE III. Result of Design Application Testing

Aspects	VG	G	B	VB
Lay-outing style		V		
Using suitable color	V			
Typography used		V		

[c] *VG= very good, G= good, B= bad, VB= very bad*

C. Testing the Application by Expert of Content Review

First begin the test by running the system. After then, the system work and tested by user through questionnaires to get the data. This case intended to determine compatibility content in the application. The test will be done by 1 expert review of content.

TABLE IV. Result of Content Application Testing

Aspects	VG	G	B	VB

Compatibility content of learning competency		V		
Continuance of TABLE IV. (Result of Content Application Testing)	VG	G	B	VB
Includes Vowel, Diphthong, and Consonants.		V		

[d] *VG= very good, G= good, B= bad, VB= very bad*

D. Testing The Easiness In Operating the Application

First begin the test by running the system. After then, the system work and tested by user through questionnaires to get the data. This case intended to determine the speed in running the application, work of the application, and clear information about the application. The test will be done by 30 users. (see fig. 14.)

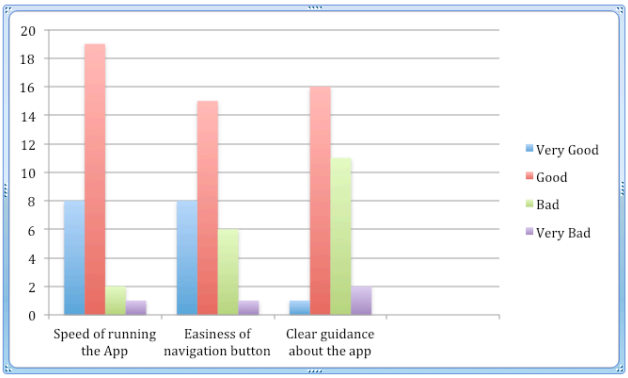

Fig. 14. Chart Result of Easiness In Operating System Application Testing

E. Testing the user interface of the application

First begin the test by running the system. After then, the system work and tested by user through questionnaires to get the data. This case intended to determine the dynamic of the user interface, the stiffness, and the easiness in understanding the user interface. The test will be done by 30 users. (see fig. 15.)

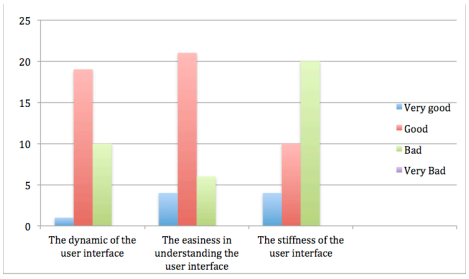

Fig. 15. Chart Result of User Interface in Application Testing

F. Testing the Usefulness of the application

First begin the test by running the system. After then, the system work and tested by user through questionnaires to get the data. This case intended to determine the use of the application in helping students to understand the pronunciation, use of the application in helping students to fix the common wrong words in the pronunciation, and there is change of the students in pronouncing pronunciation better. The test will be done by 30 users. (see fig. 16.)

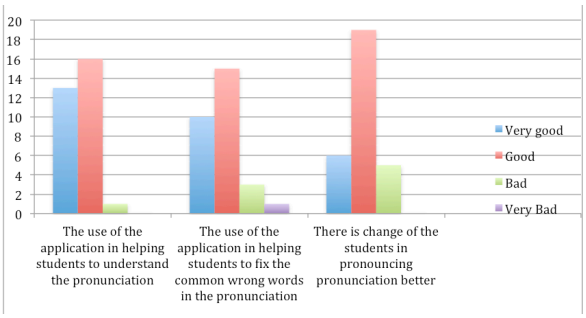

Fig. 16. Chart Result of Usefulness in Application Testing

G. Testing Student's interest in learning Pronunciation

First begin by giving questionnaires to the students to get the data. This case intended to determine the student's interest in learning pronunciation. The test will be done by 30 users. (see fig. 17.)

Fig. 17. Chart Result of User's Interest in Learning Pronunciation

H. Testing Media Which is Used to Learn Pronunciation

First begin by giving questionnaires to the students to get the data. This case intended to determine what media that will be used by the students in learning pronunciation. The test will be done by 30 users. (see fig. 18.)

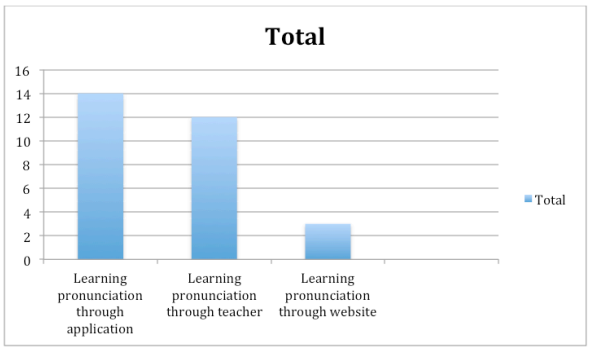

Fig. 18. Chart Result of Chosen Media in Learning Pronunciation

V. CONCLUSION

From experiment that has been done then obtained some results conclusions as follows:

1. System can work well, based on analyzed of expert (system review), such as navigation can run well, it's so easy to operate the app, the use of understandable language, consecutively workflow, good of lay-outing content placement, and has a clear guidance to run the app.
2. Application has a good lay-outing style, color background and theme, and a suitable typography.
3. Application has compatibility content.
4. Application is easy to use.
5. Application has attractive design
6. Application is useful. It can help user to learn pronunciation better.
7. Students have interest on learning pronunciation
8. Students prefer to learn pronunciation through application than direct from the teacher or website.

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