

A Screenlock Application Using Yoruba Characters for Android Devices

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ARTICLE INFO	ABSTRACT
<p>Published Online: 15 January 2025</p> <p>Corresponding Author: Olanrewaju, O.T.</p>	<p>A lock screen is a user interface that appears on a mobile device when it is in a locked state. The purpose of a lock screen is to prevent unauthorized access to the device and its content, such as personal contacts, photos, and other sensitive information. A lock screen typically requires the user to enter a password, pattern or use biometric authentication such as fingerprint recognition to unlock the device. English characters and patterns were often used for screen lock on mobile devices because English language is the most official language in some country most especially in Nigeria and other African countries, However, most illiterate and adult that are not familiar with these languages find it difficult to use. To combat this problem, there is need to develop a user-friendly Yoruba lock-screen app that takes Yorùbá characters as input and also allow users to unlock their android devices with this newly developed application.</p> <p>Moreover, Yorùbá is one of the largest ethnic groups in Nigeria. and also, there is need to promote our local language. The system was built using various programming languages and comparative study of different technique is done as per stages.</p> <p>The system is made flexible and versatile and application has a user-friendly screen. The application has been tested by various student (who uses Android APP) and has provided a successful result</p>

1. INTRODUCTION

The widespread use of mobile device has changed how people communicate, access information and go about daily activities. With the rapid growth in technology, mobile devices have become more advanced and versatile, making them essential tools for many individuals. However, with this increased reliance on mobile devices comes a need for security, as personal and sensitive information is often stored on these devices. However, one way to enhance the security of mobile devices is through the use of lock screens, which prevent unauthorized access to the device (Alan, 2002). A screen lock is a user interface that appears on a mobile device when it is in a locked state. The purpose of a lock screen is to prevent unauthorized access to the device and its content, such as personal contacts, photos, and other sensitive information. A screen lock typically requires the user to enter a password, pattern or use biometric authentication such as fingerprint recognition to unlock the device (Boroş, 2013).

In recent years, screen lock has evolved from simple password-based systems to more advanced and customized options. For example, many lock screens now include widgets that display information such as weather, time, and recent notification. Additionally, many screen lock allows for customization, including the ability to choose a background image or use themes that reflect the user's personality and style. Despite this advancement, there is a significant lack of representation and customization options for specific cultural groups. For instance, there is scarcity of lock screen application that feature the Yorùbá language, one of the largest ethnic groups in Nigeria. In order to solve this problem most especially because of some illiterate and some adults that have difficulties with English language and its character, there is need to develop a user friendly Yorùbá lock-screen app.

2. RELATED WORKS

Recently, a lot of criminal activity has been recorded when it comes unauthorized access to the device and its content, such as personal contacts, photos, and other sensitives information. However, introduction of screen lock on various devices has helped many users to secured this important information from an unauthorized individual.

Gang & Yia (2013), presents a real-time face recognition system on Android platform that realizes face detection by applying AdaBoost algorithm and face recognition using Eigenfaces. This paper also came up with some methods to speed up the face detection and recognition process and improve the correct rate of face recognition. Experimental results show that this system is able to realize real-time face detection and recognition on Android smart phones. In addition, all the work is completed on the smart phone without using any other terminals or tools.

Stoleriu, & Togan (2020), emphasize the importance of having only one application which secures access to both the screen and the apps on Android operating systems using facial recognition. An application that can restrict the access to the installed apps in the system, control them remotely through a web platform and lock the screen was created. All of these ensure complete security, beginning from the screen, the main gateway that offers access to the phone, to the installed applications that may contain important information. Thus, using a single application, users can secure the entire phone without needing to use the phone settings.

Achmad et al (2019), developed an Android-based screen lock application for Arabic vocabulary enrichment of the Tenth Grade Students at the Madrasah Aliyah. The research design used is the research and development model proposed by Borg & Gall, with some modification, according to the

research needs. The Data are gathered through scoring sheets and then analyzed using descriptive and percentage techniques. The end result of the research is an Android-based screen lock application that consists of seventy sets of Arabic vocabulary, containing three hundred Arabic words. These vocabulary items are presented randomly on the handphone’s screen as a set of questions whose correct answers will allow students to have access to their phones. The results of the research demonstrate that according to the expert and field test the application is valid, with each of the content and appearance experts scored 82%, and both teacher and students at the school scored 95% and 81%, respectively. The initiative of our Yorùbá screen lock App was gotten from this work.

3. METHODOLOGY

This system is experimental in nature and was empirically conducted. Several approaches were taken to ensure that the software meets functionality and performance standards. This project was segregated into modules as shown in Fig 1 for better development some of the modules are listed as follows;

- i. Activation page module: the activation page module shows the activation button which indicate that the user wants the Application to start working.
- ii. Default Launcher page module: This module instructs user to set the Application as a default launcher in order to proceed.
- iii. Input password module: This module allows input from users, the user input their desire password.
- iv. Lock Screen Activated: this module is the final stage which shows the final stage where the Application is in use.

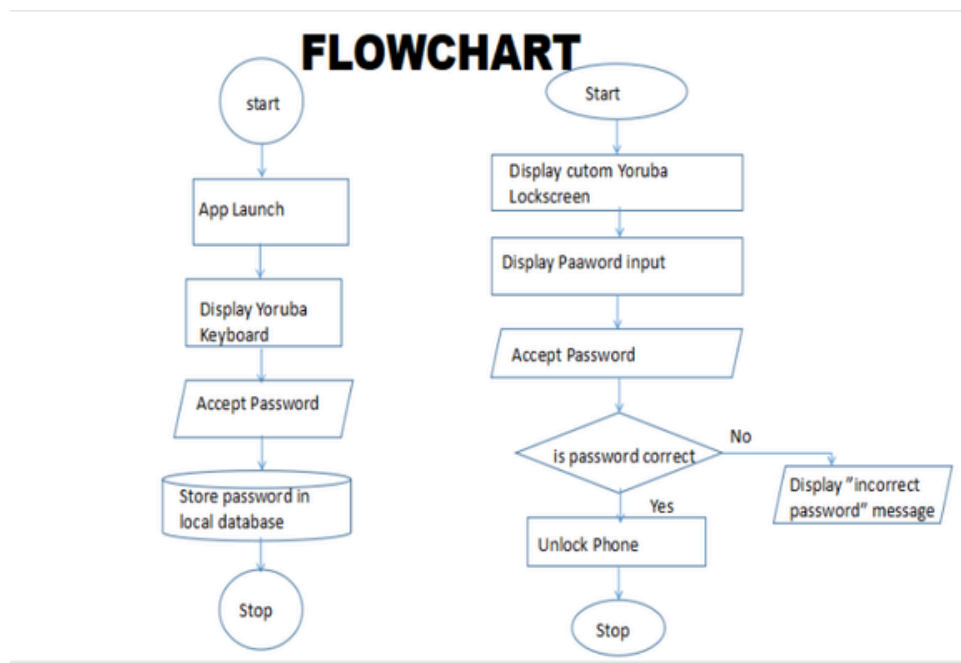


Fig 1: System Flowchart

4. RESULT AND ANALYSIS

This section gives details of the implementation, analysis, description of the screen lock application, the hardware and software needed to function and the description of the input and output of the application.

a. Description of the Application (Screen Lock Application)

In order to use the system, users are required to download and install the application. After installation, users are expected to run the application, which will display an interface that contains activation button as shown in Fig 2

b. Default Launcher Screen

This default launcher instruct user to set the application as a default launcher in order to proceed as shown in Fig 3

c. Input Password

This interface accept input from user, it allows user to input their desire password as shown in Fig 4

d. Lock Screen Activation

This interface shows the final stage where the application is in use as shown in Fig 5

e. Software and Hardware Requirements

There are certain hardware and software requirement that are needed to be met before this application can function efficiently. The hardware and software are listed are: Computer system with internal storage space (16GB minimum), RAM (2GB minimum) and CPU (1GHz minimum). Android Device and Android Operating System (version 7.0 upward).

f. Program Codes

The languages and IDE used for the development and deployment of the applications are JAVA, ANDROID STUDIO and XML.

g. Input and Output Design

The input and output derived from the developed system are shown and analyzed as follows:

Fig 2 represents activation screen and it displays “jeki osise” which means let it work by clicking on button to activate the app.



Fig 2: Activation screen

Fig 3 displays the interface page that shows “iwo yoo nilo lati yi default launcher re pada si ‘Yoruba lock’ lati pari iseto naa. Se ki n tesiwaju?” this page instruct user to set the Application as a Default Launcher in order to proceed.

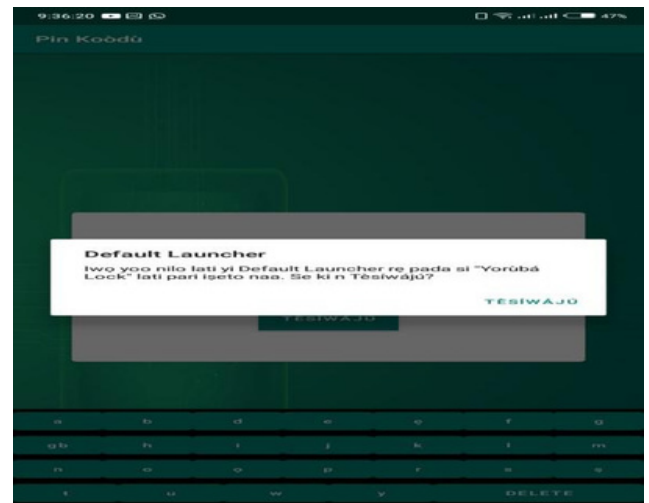


Fig 3: Default launcher screen

Fig 4 shows interface that displays “Te oro igbaniwole re sii” which means “input your password” this tells the user to input their desire password.

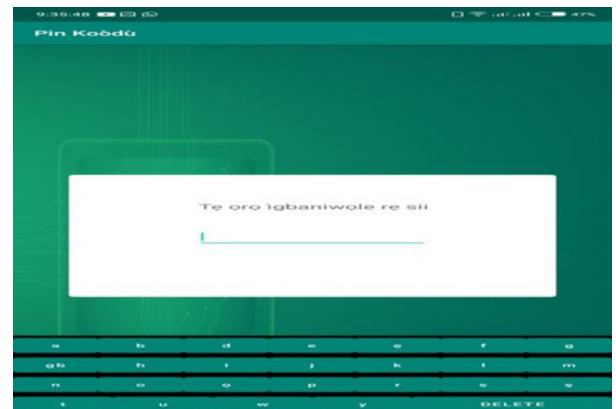


Fig 4: Password

Fig 5: displays the activation page, this is the interface that shows the final stage where the application is in use



Fig 5: Lock Screen activation

5. DISCUSSION

The work of Achmad et al in 2019 motivate the author to develop a screen lock app using the characters from Yorùbá language which is one of the Nigeria languages.

The developed system perfectly works on any android devices application and android operation system from window 7 upward. During the development implementation of the developed application, a software/virtual keyboard was used as input device for entering data. Despite not being an actual keyboard, it allows users to type using simulated keys.

However, the result and feedback from the various android device users show that the Yorùbá screen-lock application can run effectively on any android devices without stress. The newly developed application will be useful for both adults and illiterates' users that speak, read and write in Yoruba language and it is also acceptable by all Netizens.

6. CONCLUSION

The system was made flexible and versatile. This application has a user-friendly screen lock interface which can be use with ease. The application has been tested by various student using Android devices and the results were excellent. Hence the application has proved to work efficiently and effectively based on the report and feedback from the users.

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