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**COMPUTER SCIENCE EDUCATION AND
A SOFTWARE TOOL FOR REALTIME TRACKING LOST MOBILEPHONE RECOVERY
BY**

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ABSTRACT:

In developing nations like Nigeria where the use of smartphones and other mobile devices is rising swiftly, phone theft is a serious issue. The project's objective was to develop a mobile application for quickly locating and retrieving lost mobile phones in order to improve the process of recovering lost phones with the knowledge of Computer Science Education.. The system was developed utilizing the unified modeling language, using an object-oriented analysis and design approach. A real-time internal Firebase database, Google Map, and the Android SDK Tools Version were used to build the system.

INTRODUCTION:

In recent years, devices have significantly shrunk in size. Given their relevance in the current global information technology economy, it is impossible to dispute the development of multiple hand-held and compact telecommunication devices as a result of communication and information technology breakthroughs. Cellphones, which are the most common of these devices, have strong computing capabilities.

Despite its compact size, it should be equipped with a variety of features, most importantly a quick internet connection. Cellphones are essentially indispensable in contemporary culture due to their usability and simplicity of integration into a user's daily routine.

Staying in touch with coworkers, family, and friends has been easier with the advent of cell phone and knowledge of Computer Science Education.

According to reports, 92.9% of individuals worldwide owned a mobile phone in 2020. The percentage of people who own cellphones is expected to reach 97% by 2024. Nigeria is expected to have more than 210 million smartphone users by 2025, up from the current 60 million.

II. LITERATURE REVIEW

This paper titled improving/simplifying the recovery process for lost/stolen phones is an Android application that will serve as a tool for reuniting users with their lost phones. With the use of Google Maps and an underlying Firebase real-time database, the application will provide live and accurate location data of the lost device. Finding a phone is one thing and retrieving it is another, in a scenario where a user tracks down the lost phone using the application, the user can also perform administrative operations such as data wipe, device lock, and device ring remotely. With the device ring feature, the user will be able to ring the lost phone even if the phone is on silent mode.

Attempts have been made by several researchers towards the development of an efficient mobile phone tracking system. Developed an Anti-Theft Application for Lost or Misplaced Android Phones. The application was designed to enable users track their lost or misplaced devices. This was made possible with the use of GPS tracking, video recording, image capturing, SIM card change notification, SMS, MMS, and email messaging. The video recording and image capturing feature of the application is an added advantage; these features create a possibility of identifying the possible thief, if the phone was stolen.

Google LLC released a "Android Device Manager" application that allows users to find their smartphones if they are stolen or misplaced. It was attached to the Google account of every user, making it accessible to anyone who owns a Google account [4]. However, the application has some

limitations, including the absence of a feature that plots the GPS coordinates of the device and presents it on a map, as well as the inability to provide real-time data.

If a user logs out of their Google account, this program becomes ineffective because it no longer has authority over the vanished device. Due to this, the created application may prohibit application removal and will not permit a user to log out.

In addition, created an app called Mobile Tracker App that could track a missing phone's location and provide other crucial details. A user can carry out a number of operations on the lost device using the application. The messages transmitted through a different device with a different registered phone number are used to do this.

The software contains two flavours, one aimed at the missing device and another for managing the device, and texts cannot be generated from any phone. In connection with the application, "@track location" refers to transmit the current location (longitude and latitude), "@takepicture" means send photo to registered email, "@trackcontacts" refers send contact schedule, etc. Whenever the SIM card of the lost cell phone changes, the Mobile

Tracker App sends a text message including details about the newly inserted SIM card to the control device. That this application can be used and managed without an internet connection constitutes one of its benefits.

Since text messages are the only way to control the missing cell phone.

This tracking system's ability to guarantee recovery is its basic drawback. Without a map, it will be incredibly challenging to find a misplaced phone because users might not know what to do with the GPS coordinates that are supplied to them. Another drawback is that the application only uses the device's rear (back) camera, making it difficult to photograph a potential thief's face.

III. Methodology

The software application developed for this research is designed utilizing the Object-Oriented Analysis and Design (OOAD) methodology and the Unified Modelling Language (UML).

Figures 1 through 4 show the system design's component parts.

IV. RESULTS:

Figure 1: Use Case Diagram

The software was developed using Android Studio SDK, which is the official IDE for developing Android applications and contains all the essential tools. Java is used to write the software program's logic, and XML (extensible Markup Language) is used to write its layout and interface design. An Android-powered device can run the generated package 7, if required.

V. DISCUSSION

The application outputs shown in the Results section are explained next. Registration Interface screenshot: This is where a user can register by filling the required fields 7 in the form.

Find Device Interface screenshot: This interface allows a user to find a lost device by typing its L-CODE in the field provided. When the L-CODE is typed been verified, the application redirects the user back 8 to the Map Interface.

Control Device Interface screenshot: This interface is invoked when a user has successfully found a device. It is part of the Map Interface. It has four buttons (INFO, LOCK, WIPE and RING), and it places a red marker on the map showing the current location of the lost device. Lease enter enough text to summarize.

Device Details Interface screen shot: This interface shows details of the lost device. It pops up when the Info button on the Control Device Interface is clicked.

Confirm Wipe Interface screen shot: When a user clicks the WIPE button the Confirm Wipe Interface pops up showing a message of confirmation.

VI. CONCLUSION

Recovery of misplaced or lost mobile phones is a rampant problem that requires address. This study was able solve the above-stated problem in a set of simplified steps. With the availability of the software developed in this study, finding a lost device has been simplified and less technical, so as to enable the most ignorant users recover their lost mobile phones. Enable this feature because doing so will enhance the chances of discovering a lost device.

VIII. REFERENCES

VII. FUTURE RESEARCH

Due to some technical and environmental limitations, several other features that are desired to be included in this research are lacking. Therefore, it is recommended that the following be included in future research: The map provided by the application when a device is found shows two markers (present device and lost device); it is desired that a line of direction is drawn from the source marker (device in use) to the destination. Marker (lost device) so as to give a user the knowledge of how to travel towards the lost device as its location changes. Future researchers should incorporate this feature to enhance user experience. When a device is to be registered by the system, the generated L-CODE is shown on the screen, this code consists of 20 characters which makes it difficult to remember. Future researchers should make a provision for the L-CODE to be sent to the user's email when a device is registered.

A user can control a lost device only when there is internet connection; it is desired that, there be an SMS command feature. With this feature, a user should be able to control his/her device using text message commands. Future researchers should Smartphone. (2018). Retrieved October 22 2018, from Wikipedia: <https://en.m.wikipedia.org/wiki/Smartphone> [2] Statistic. (2018). Mobile

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