



ANDROID & FIREBASE BASED ANTI THEFT MOBILE APPLICATION

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Abstract: This research proposed an android-based-approach for the design of a mobile smartphone anti-theft system that is fit for performing Subscriber Identity Module (SIM) card discovery, location and mobility information fetching through Global Positioning System (GPS), sending the fetched location using Short Message Service (SMS), passing culprit's mobility information to the corresponding mobile operator to provide the mobile number, capturing culprit pictures using either the camera of the stolen phone or the culprit image captured by the mobile operator and transferring the information to the alternate email id/SIM and appropriate authority to capture the smartphone theft culprit. The system was developed using Android Studio IDE, Java programming language, and SQLite database. The system evaluation was carried out using a survey form integrated into the developed anti-theft system. On average, more than 80% of the participants found the framework to be simple and easy to use.

Keywords: Smartphones; Anti-Theft System; Subscriber Identity Module; Global Positioning System; Short Message Service

INTRODUCTION

Sensitive data is stored in abundance on smartphones. Due of this information and the high value of smartphones, they are a desirable target for physical theft. In such a situation, it is obvious that the device owner would prefer to reclaim the gadget. Additionally, the data must be shielded from unauthorised access. We introduce the first anti-theft approach that addresses these problems in this study. Our suggestion is founded on a cutting-edge idea for an anti-theft honeypot account that safeguards the owner's data while prevents a thief from wiping the device clean.

As a result, there is a significant likelihood that the owner of a stolen device will be able to recover it, and information leakage to the criminal is avoided. Everyone's life depends on their smartphone. They make a substantial contribution to daily life. Today, people use smartphones for a variety of tasks, including taking pictures, browsing the internet, and doing their banking online. These fantastic benefits do, however, come at a cost. The owner of the gadget loses a lot of personal data in addition to the device if it falls into the wrong hands. When a thief obtains personal information, they may try to use it fraudulently or via blackmail. Having a system in place to prevent smartphone theft and the loss of the personal information stored on them is crucial. Anti-theft methods are what are used to protect the devices.

The price range for smartphones today is between 5000 and 1,00,000 Rupees. The personal information that is kept on a phone is also lost or stolen, in addition to the cash loss. A study found that in 2013, there were 3.1 million stolen smartphones. According to a different study, victims are willing to pay between \$500 and \$1,000 USD to reclaim their personal information, including images and videos.

OBJECTIVE

Almost every owner of a costly mobile handset fears the nightmare of losing his mobile phone. We have come across many middle class people losing costly mobiles and unable to get back the same even with the help of police officers. To recover lost mobile phones thus creating a fear psyche in thieves that they cannot get away with mobile phones. Monetizing by helping poor chaps who could not afford to lose a mobile phone.



LITERATURE REVIEW

Y. Adam et al [1], the paper discusses several security issues and potential benefits of mobile phone monitoring technologies, particularly for companies that buy and sell old mobile devices. For instance, cases involving stolen or lost phones come up. Police may become involved in some of the instances when they conduct digital investigations to find the offenders. However, a victim or victims of a phone theft-related crime may be mistakenly apprehended because some complainants are unable to offer information that will help the police conduct an effective investigation. In order to help phone owners and potential buyers and sellers of used mobile phones who want to protect their handsets from theft and fraud, this article evaluates literature on anti-theft and mobile tracking technology.

Parshuram Parab et al [2], one of the major issues that our society has is mobile phone theft. There are some options, however the majority of them depend on additional hardware or reprogrammable BIOS. In this study, a method for finding lost devices using hardware fingerprinting is proposed. This method makes use of the device's unique ID, which stays static even after the device is cleaned, erased using fast boot mode, or even after the ROM is changed. The technique also aids buyers of used equipment in determining the legitimacy of the item they are purchasing. This essay also examines all feasible approaches one could take as well as their shortcomings.

Sayali Deore et al [3], the user will be able to trace their lost or misplaced cell phone thanks to the project's development. If the phone is placed within reach, a simple order from a friend's phone will cause the user's phone to ring even when it is in quiet mode. When a user misplaces a phone, he or she may not be able to hear it ring since it may not be within reach. In these cases, a simple command from a friend's phone will enable the user to receive the phone's GPS location information as a URL. Additionally, the phone's camera operates in the background, taking photographs and sending them to the actual user without the user being aware of it.

Azeem Ush Shan Khan et al [4], this paper outlines a method to enhance anti-theft for mobile devices running the Android operating system by leveraging alternative services like MMS in

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place of SMS. Many anti-theft scenarios have already been proposed, and many anti-theft software has also been developed as the use of smartphones, tablets, and phablets with Android operating systems grows. However, the majority of these software are not freely available, and it is challenging to identify the thief by using these software's, such as GPS Tracking. We provide a novel plan that improves the current situation and is based on cutting-edge innovations like multimedia messages. The situation outlined in this work completely depends on your smartphone's hardware, such as its front- and back-facing cameras and capabilities for multimedia communications.

Soham Raut et al [5], over the years, as more people became enthused about them, smart phones grew in popularity. Mobile devices today perform a variety of official tasks in addition to personal ones. In addition to a variety of other private and secret materials, people can save passwords, important documents, images, and movies on their mobile devices. Furthermore, high-end mobile gadgets are highly expensive. However, people suffer significant losses as a result of mobile devices being stolen or lost on a regular basis around the world. However, these advancements make data security when the device is lost or compromised difficult. This effective data security tool for Android phones aids in doing this task.

Imran Chowdhury et al [6], a microcontroller-based solar-powered anti-theft automated security system with arrays of sensors to detect potential entry incidents is designed to address the safety of the home or other facility. Based on information from its interfaced sensors (Motion Sensor, Fire Sensor, and Glass-break Sensor), the developed system generates three different alarms (Buzzer, bi-color LED, and SMS) with a security breach warning through an LCD. Atmega8 is the microcontroller that manages every element of the system. The unique Glass-break Sensor is constructed using a sensitive metal strip, a Light Depended Resistor (LDR), and a Potentiometer (POT). A Temperature Detector LM35 serves as the Fire Sensor.

PROBLEM STATEMENT

The incidence of mobile phone theft has been linked to factors such as unemployment, greed, and the introduction of new mobile phone items and upgrades along with alluring marketing that pique interest in buying the newest models. Another important element that substantially contributes to phone theft is the supply and demand for secondhand phones. Additionally, the prevalence of mobile phone theft in the region might be ascribed to the existence of markets like Farm Center in Kano Metropolis where used mobile phones are sold without sufficient regulation. Thompson (2014) asserts that humans are unable to fully comprehend the prevalence without knowing how many markets for stolen products function to affect supply and demand, stealing occurs. More specifically, the social ill has been connected to several socioeconomic issues like peer pressure, hard times, and unemployment. Mobile phone theft is a social problem that is



only sometimes committed, but it has social and psychological repercussions for society as a whole and for the individual in particular. This study studies the incidence of mobile phone theft and its management in Kano Metropolis, Kano State, based on this premise and to establish the fact.

Mobile phone has the personal information. If the phone is stolen then there is possibility of misuse of this information. There may be any personal or financial problems can be happening. So, finding stolen phone is very important task There are some technology and technique available. Using that we can find out the stolen phone. In India if the phone is stolen or loss then finding that phone becomes very complicated process. We need to file a case in police station and follow a lengthy procedure. So, to make this process easy and comfortable. We have developed an android application.

PROPOSED SYSTEM BLOCK DIAGRAM

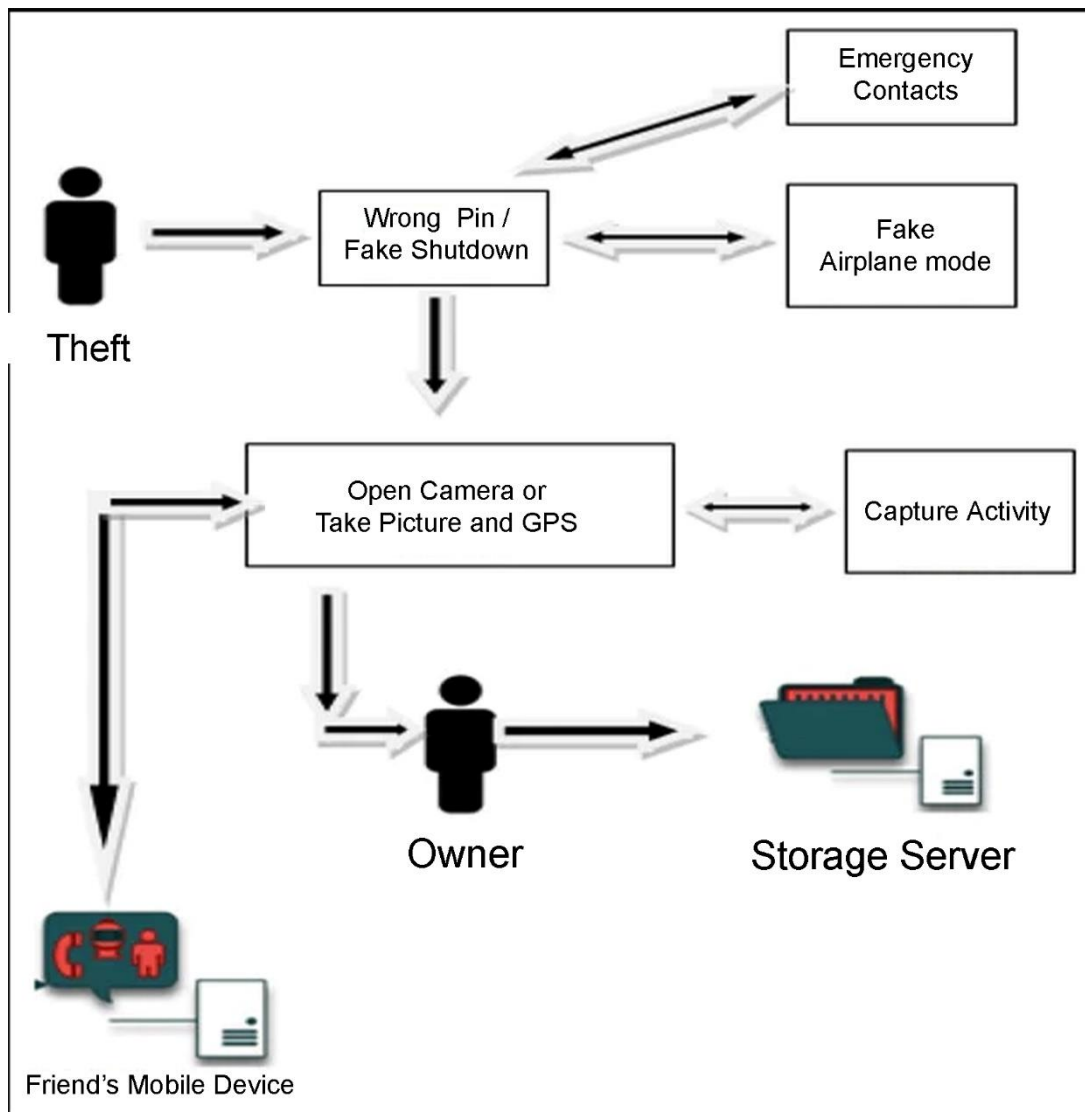


Fig. 5.1 System Block Diagram

- Theft Catcher is a lost phone finder that will ensure anyone who steals your phone ends up in trouble by turning on the emergency alert. Even if they power it off or enable airplane mode.
- It will secretly take photos of the intruder, and send it to your email. It also has a phone tracker to help find lost phones.



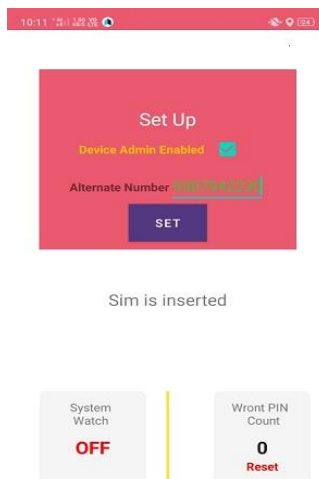
- Theft Catcher is equipped with a Panic Button, Fake Shutdown, Fake Airplane Mode, Intruder Detector. All these focused on sending a safety alert & SOS to your family.
- EMERGENCY CONTACTS: When Hammer detects an SOS, it automatically sends live location, pictures & audios to your Emergency Contacts.
- FAKE SHUTDOWN: Any tracking app in the world is disabled as soon as they shut down your phone. For this reason, we decided to solve the root problem. If someone tries to shut down your phone, Hammer will simulate a shutdown state, but instead, it sends live location, pictures & audios to your Emergency Contacts.
- FAKE AIRPLANE MODE: If someone tries to enable airplane mode, Hammer will simulate an airplane mode state, but instead, it sends live location, pictures & audios to your Emergency Contacts.
- INTRUDER SELFIE: If someone fails to unlock your phone multiple times, we will take a selfie and send it to your email.

RESULT AND DISCUSSION

Splash Screen:-




SetUp:-





Login page:-

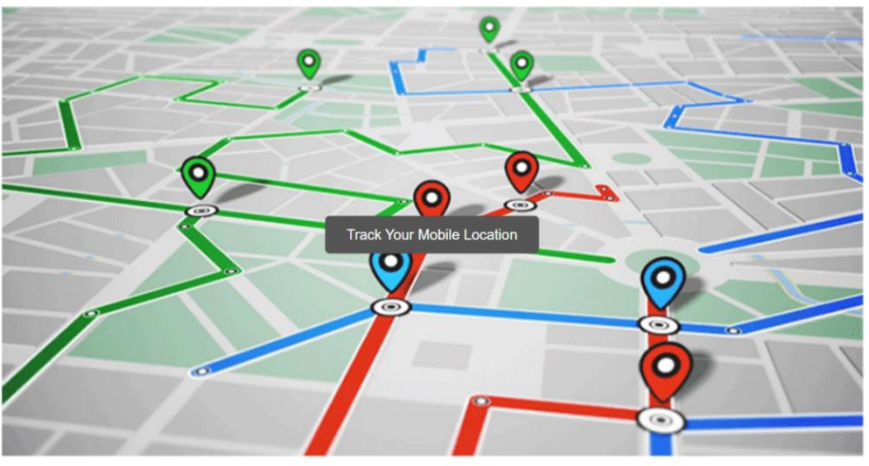

Login
Username

Password

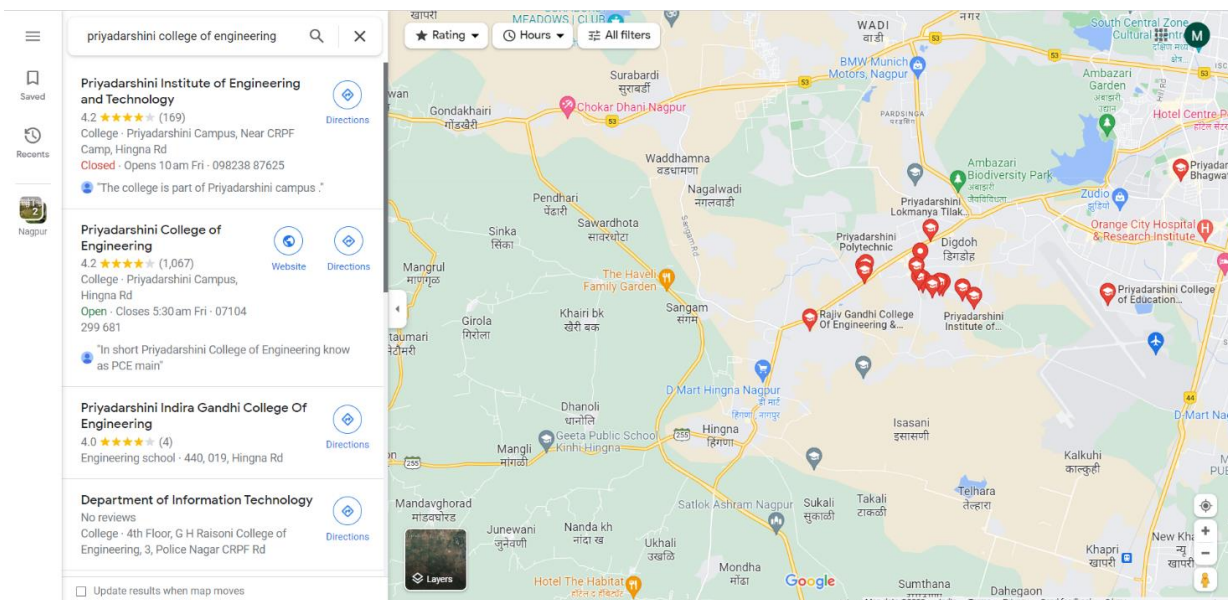
Mobile Information:-

Device Information
Device Name: Redmi Note 7S Xiaomi
IMEI no.: 9865413131313
SIM Status: Inserted

Thief Information
Wrong Psswd: A Wrong PIN Was Entered On Your Phone
Wrong Password Count: 2
Date & Time: 2023-04-20 15:11:22.185



Live Location:-





CONCLUSION

Theft is one of the most extremely typical and most established criminal practices. At the point when there is no means of identification, people might claim objects to their advantage to the detriment of the original owner. This research paper established a cost-effective and user-friendly android-based anti-theft system that can help in recovering stolen or misplaced smartphones. The anti-theft system can identify SIM cards mismatch using the SIM unique number, location, and mobility information fetching through GPS, sending the fetched location by means SMS on the off chance that there is no web network and passing culprit's mobility information to the corresponding mobile operator to provide the mobile number of the culprit within a given distance, captures the culprit pictures using either the front and rear camera of the stolen phone or uses the culprit image captured by the mobile operator during SIM card registration and transfer the images to the user alternate email address, which will be used by the police and the appropriate authority to track the smartphone and the culprit.

The system evaluation was carried out using an online survey form attached to the developed system. The metrics considered are ease of use, accuracy, responsiveness, and novelty of the system's ability to detect theft. 11.43% of the participants found the anti-theft system very easy to understand, 68.57%, 16.19% of the participants rated the system to be "Very Good" and "Good" respectively. Few percentages of the participants rated the system average and fair. Although system evaluation revealed that the system can perfectly detect smartphone theft, further research can attempt to integrate more security features into the application. Also, the application will not work if the lost smartphone gets switched off.

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