Monitoring Smartphone Activity

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Abstract— ***Present era can be considered as Smart Phone Era as the usage of smart phone is common. At same the issues related to smart device is also very important. Consider a situation where Friends/Employees may take owners or companies phone and misuse them. So that the owner won't be knowing what and all are done. So there is requirement of a system that keeps track of all the activities of user. In this project call, SMS, and applications monitoring along with screen recording is done to record user activities.***

Keywords— ***monitoring, sms, call, recording,, pin.***

I. INTRODUCTION

Due to technological progress, today's mobile phones have evolved into technically and functionally sophisticated smart phones which have more in common with computers than with the conventional phones. As a result of their popularity and functionality, smart phones are a burgeoning target for malicious activities.

Android is the most used os in smart phones. It is open sourced platform. Android is Linux based operating system created for touch screen Smartphone, as it is open source, which allows it to be used and customized. Now a day major companies like Samsung, htc, Motorola and more use this os. Another most used Smartphone operating system is the ios originally called iphone operating system developed by apple can runs exclusively on apple hardware. In android it is possible to modify the applications as opposed to the rival ios. Talking about applications, just like apple devices have a range of applications for its users. Android has a storehouse of applications called the Google play store. There is no limit or restriction to the applications that can be included in the play store, unlike its competitor apple. Although, Google does get rid of applications riddled with malware or explicit content.

For users, a known fact in smart phones, any app can be downloaded from app-store without accessing a significant quantity of personal data which is different in app store. Consider a situation where friends/employees may take owners or companies phone and misuse them, like call someone and delete all the call logs or message someone and delete all its records or open some apps and delete its traces or open some personal multimedia files. In some cases even keeping the password doesn't work like if close friend asks the password or friends/employees may know the password. So that the owner don't even knowing what and all are done. So there is need of a system that keeps track of all the activities of user and save these data such as call logs, sms, app log, along with screen recording with date and time. That system accessible only to the owner.

A. Purpose of the Project

This project monitors all activities of the users in a Smartphone. So that the legitimate user come to know all the activities of the other user. In this way it is profitable to all the Smartphone users. In this project a system is built to monitor activities of users in Smartphone.

B. Motivation

Smartphone is widely being used by the population these days. As in the current system call logs, messages sent and received are easily deleted by the end user. The knowledge of opened Application with time and date information is not available. There are many systems that gives security to smartphone, but here we are not talking about the security. Here the main intension is the user activities monitoring. So there is a need of a system that monitors the user activities in smartphone. Therefore the legitimate users come to know the activities in their smartphone.

C. Scope of the Project

As Android is most used operating system in smartphones. Here system is built on Android platform to reach maximum users. The scope of this project is to provide an android application for the users which monitors the activities in smartphone. This system is for the users who smartphone usage includes other than legitimate users. The illegitimate users include other than phone owner like family members, friends, employees etc.

D Proposed System

The proposed system focuses on monitoring the activities of users in the smartphone. Its keeps track of incoming and outgoing calls, incoming and outgoing SMS, opened applications with date- time and also takes the video of the

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screen in background. So that it captures every moment of the user activity.

II. METHODOLOGY

The work started with literature survey for monitoring the smartphone user activities. So that legitimate user will know the activities done in their smartphone and plan further accordingly. As android is most used smartphone OS. We started understanding Android Studio and java along with android interface and got an idea of working with the Intel® *HAXM (Hardware Accelerated Execution Manager)* android emulator. We build small system on Android Studio using java and ran it on emulator, and gradually developed the units of the original application.

A. Back End

The backend consists of four tables for saving incoming SMS, outgoing SMS, incoming and outgoing calls and applications opened along with date-time. Broadcast-receiver is used for receiving SMS and outgoing call. Content-observer is used in Service for sent SMS and incoming call. A service is used on separate thread for checking application running in the foreground. SQLite database is used for saving structured data. Another service is created for screen recording and the recorded file in mp4 format is stored in external directory.

B. Front End

The front end of the system temporarily runs on Intel® HAXM android emulator typically consists of several frames which are java classes build on Android Studio each form has got button instance and on click listener method is invoked to start a new intent that is nothing but going from one screen to subsequent screens. The instances could be specifically depicted per screen:

The main screen consist of 4 functional buttons SMS button, call button, Application button and screen recording button. It also contains a go incognito labelled switch to make application icon hidden. SQLite database is used for saving structured data.

If SMS button is pressed, onClickListener (); is invoked. It takes to sms frame which consist of another two buttons inbox and sentbox. Frame under inbox button consists of 30 latest incoming sms and frame under sentbox button contains 30 latest outgoing. If call button is pressed, it takes frame consisting of 30 latest incoming and outgoing calls records. The older records will removed from the database in first in first out manner.

If application button is pressed, it takes to frame consisting of records of the 30 latest applications opened. The older records will be removed as told above paragraph.

If screen recording button is presser, it takes to screen record frame. Which consist another three buttons start, stop and autostart. Start button will simply start the screen recording and the recorded video can be viewed only after stop button press. It can record video of any length.

Autostart button is starts the recording, a new file is created every ten minutes and if the videos size are more than some value (say 200 mb), the older files will be deleted periodically. This service can also be stopped using stop button.

If the go incognito switched is pressed, the application icon will be hidden from the app drawer. It can only be opened by dialling the correct pin password on default dialler. Password can be changed by going to settings.

III. SYSTEM DESIGN

The system design refers to plan the solution for a problem analyzed in analysis phase where analysis is the first step in moving from problem to the solution domain. Design generally incur to the overall development maintenance and up gradation of the system under process of development. Here discussion on the high level design and detailed design of the project is done. The various issues that need to be taken care of while designing are also dealt with. Here Problem Partition design principle is used.

In this system, four services are created for call, Message, Application and Screen Recording. These services monitor the moves of the user and stores in a queue i.e. incoming and outgoing call log, incoming and outgoing SMS log, application opened with date-time and screen recording is also done here. The records saved in database is removed after data reaches certain size limit. Activity is created to access those stored data. All the tracking operations are done in background and is stored in memory.
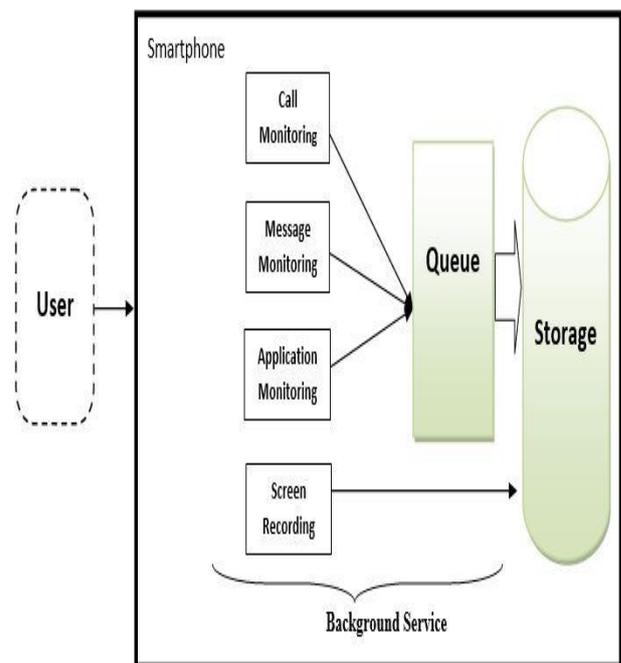

Fig 1. System Overview

Block diagram of the system is shown in Fig 2. When the system is started, pin is checked. If pin is correct then monitoring starts. User activities are collected and saved in the storage in array fashion.
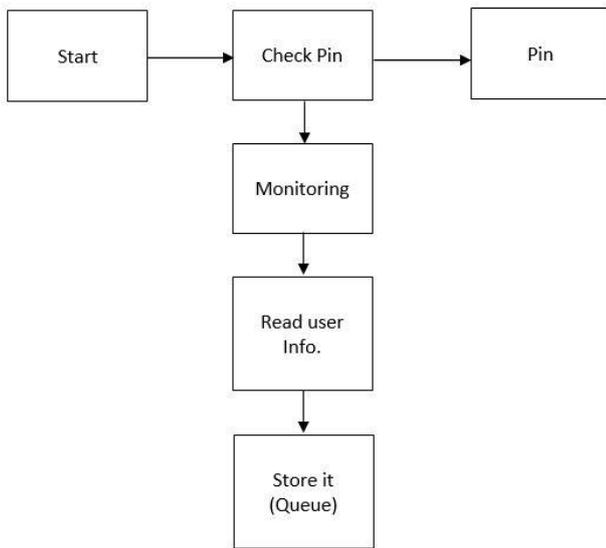
Fig 2. Block Diagram

In the block diagram in Fig 3 shows the inner components of Pin block. Here if there is no pin registered, then user has to register a valid pin. If the pin is already registered, then user has to enter valid pin to open the hidden app.
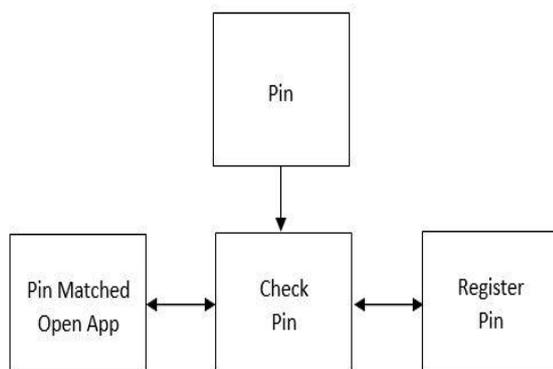

Fig 3. Block Diagram of Pin

IV. RESULTS

The application monitor the user activities such as retrieve call information, SMS information, applications opened and screen records the entire session. So these records are stored until certain size limit is reached, after that the old records are removed in First In-First Out manner. The pin system to open the hidden app also works fine with default dialler. So the application is running correctly as expected.

V. CONCLUSION

The application monitors user activities in Smartphone. This project monitors all activities of the users in a Smartphone. So that the legitimate user come to know all the activities of the other user. In this way it is profitable to all the Smartphone users. In this project a system is built to monitor activities of users in Smartphone. As Android is the most used operating system, here an application is built on Android platform to monitor the activities using Android Studio and Java coding.

The user first registers the pin to the application. Pin is required to open hidden App. The application retrieves information of Incoming/outgoing call, SMS, opened Apps and also screen recording is done. So that Smartphone owners can check all the activities done.

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