International Journal For Technological Research In Engineering
Volume 1, Issue 10, June-2014 *ISSN (Online): 2347 - 4718*

MOBILE DEVICE FORENSICS

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I. INTRODUCTION

A research project to search & observe different **Digital functions** for mobile devices & implement its use for mobile tracing without using internet

A. Aim

- Forensic Department of different divisions like CBI, IB & CID can use this system for prevention and solution of crime by efficient mobile tracing.
- Agencies like RAW can use this system to get the location of their agents.
- Police & Defense can use this system to get location of criminals and sometime it can be useful to get the location of any victim of any accidents or the natural disasters.

B. Current System Scenario

- Using GPS(Global Positioning System)
- Using Internet
- During Phone Call etc.

C. Limitation of Existing System

- Require Internet
- External location tracing devices are required
- Security problem

D. Innovation in System

- Use of Digital function in Mobile Device to acquire the digital location parameters. (LAC, CID, MNC, MCC)
- Get location parameter of Mobile Device without using Internet or GPS.
- Mapping of all four parameters (LAC, CID, MNC, and MCC) to Google Map.

F. Characteristics

Analyzing user characteristics is an important aspect of any project. It allows us to clearly define and focus on who the end user are for the project. Also, it allows us to check the progress of the project to ensure that we are still developing the system for the end users. As whole process is done under government regulatory authority, he/she must have the knowledge of Android applications, aware of mobile networking, skill of AT, AT+ commands, etc. required for USSD code injection.

E. System Structure:

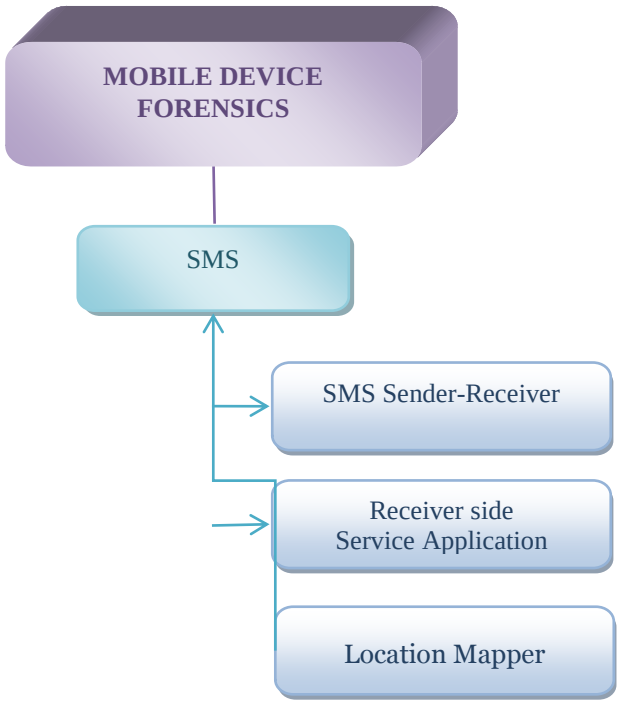


Fig. 1 System Structure

G. User Classification

- Administrator: Performs the entire task to trace mobile location.
- Victim mobile device: It is a passive user which uses the service application indirectly. This is the device which is going to be traced.
- Mobile user: Access the URL in which IFrame has been injected

II. SYSTEM FEATURES

This section gives pictorial representation of System's features.
The main features of mobile USSD forensics are:

A. SMS injection

- It is offline process i.e. doesn't required Internet service.
- It is used to get the location parameters of victim's Android device with the help of different modules of Mobile USSD Forensics.
- It uses AT+ commands which are used to control SIM card functions through GSM USB modem.
- The dial up or wireless GSM USB modem which is going to be used within Mobile USSD forensics

requires AT commands to interact with computer and the desktop application resides in it.

- This process is proceed within sender-receiver module and after getting supplementary parameters, it interact with Location mapper which converts the location parameters LAC, CID, MNC, and MCC into longitude and latitude and maps that on Google map.

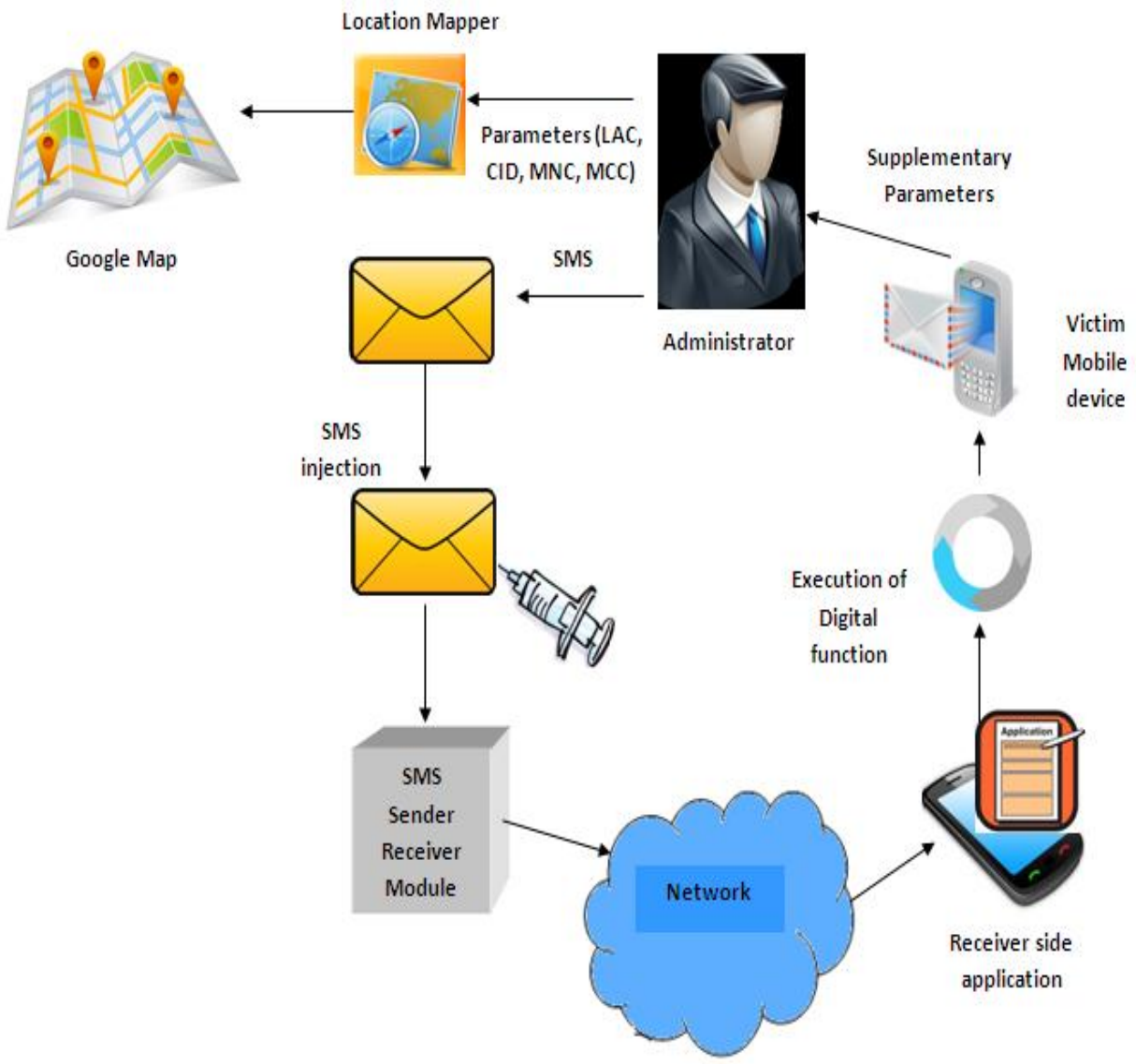


Fig. 2: SMS injection

Here we will send SMS to a mobile device in which receiver side application resides. On receiving this injected SMS, the victim mobile device will generate an auto SMS reply with location parameters. We have to pass that parameter to Location Mapper and by following these phenomena we will get the device location on Google map.

III. IMPLEMENTATION ENVIRONMENT

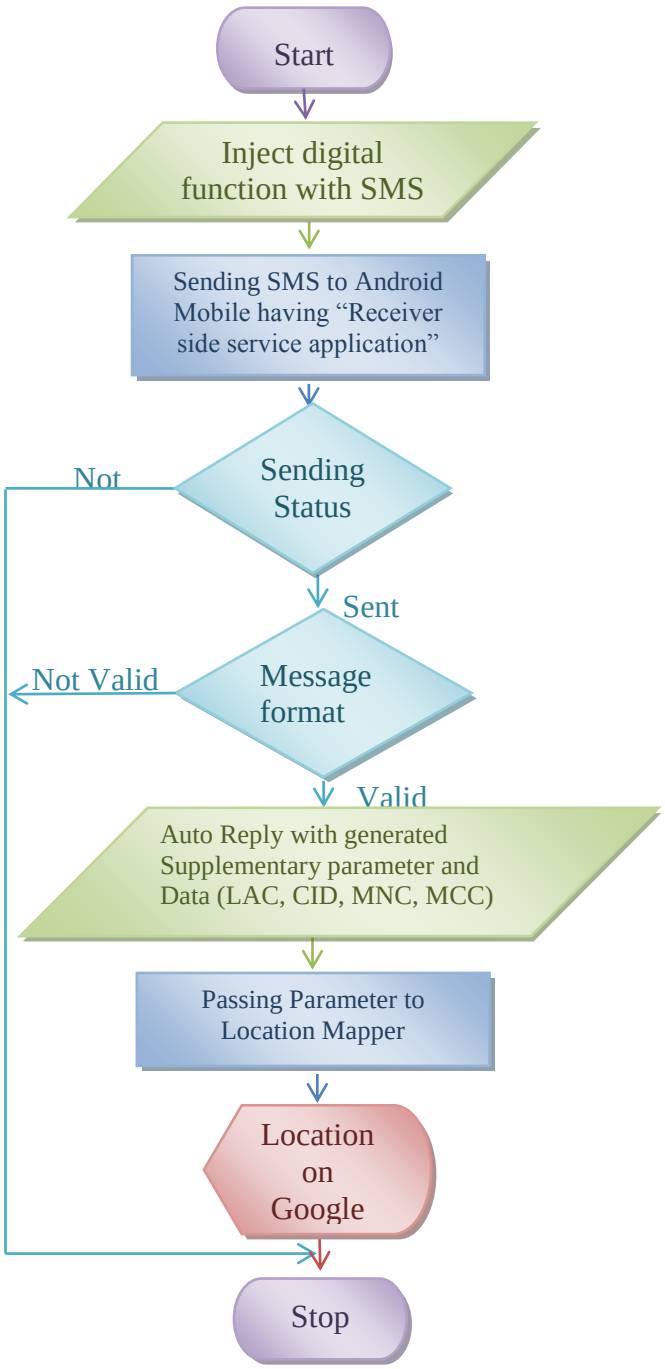
This application is security algorithm based application. Only authenticated person can use it. Admin can use whole the system to get supplementary data and trace location.

A. Admin-Side

- Platform: Linux , Windows XP,Winows7 ,Windows8

B. Victim Side

- Android OS



Data Flow chart

C. Security features

As security aspect is taking more importance in the development of any application, this project was also developed using the security concerns in the mind. Today we find many systems being hacked and important data are being stolen without the knowledge of the user. So as a general feature the security and secure coding practice has become the necessity for any project.

IV. CONCLUSION

The system I have developed is useful to execute digital function remotely to get supplementary data which can be useful for Mobile tracing.

- "Mobile Device Forensics" is useful to our society.

A. Authenticated Users

- Forensic Department of different divisions like CBI, IB & CID can use this system for prevention and solution of crime by efficient mobile tracing.
- Agencies like RAW can use this system to get the location of their agents.
- Police & Defense can use this system to get location of criminals and sometime it can be useful to get the location of any victim of any accidents or the natural disasters.

(Above mentioned system users are must require to be authenticated to access this system)

B. Future Enhancement

- The receiver side service can be embedded with the Android OS kernel.

SMS injection of digital function without using receiver side application.

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