MoniDroid: Android Monitoring Mechanism-Without Root

Ghulam Mustafa
Dept. Computer Science
National Textile University
Faisalabad, Pakistan
ghulammustafanfc@gmail.com

Ahsan Idrees
Dept. Computer Science
NFC Institute of Engineering &Fertilizer Research
Faisalabad, Pakistan
Ahsanidrees06@gmail.com

***Abstract*—Today's Multimedia mobile devices are multifunctional devices capable of hosting a broad range of applications for both business and consumer use. Smartphones now become a trend as almost every person has a smart-phone nowadays. Even children that are unaware of the hazards of this arising technology have multimedia smart-phones. More the rate of cyber-crimes and trapping the children for personal interests increasing day by day. So this is the necessity of time to keep the hazards of the technology away from your loved one. Stay safe and also keep others. Android Monitoring Mechanism is specifically designed to monitor children or employees and keep an eye on their activities. Secure your child from the company of bad friends by watching their contacts, conversation, call logs, their location.**

Keywords— Android Application, Monitoring Tool, Remote Access, Without-Root

I. Introduction

Nowadays by using Smart-phones, our new generation is in the real hazard. Therefore it is necessary for the parents to monitor the smart-phone of their children. So that they can be aware of their activities. More the rate of cyber-crimes and trapping the children for personal interests increasing day by day [1]. Android monitoring mechanism-without root will help parents to learn about their child's Smart-phone activities. Learn about their calls, text messages, and GPS locations by logging into monitoring tool account from any web browser. Now you can see all photos taken by the phone.

Nowadays by using Smart-phones, our new generation is in real danger. Therefore it is necessary for the parents to monitor the smart-phone of their children [2]. So that they can be aware of their activities. More different companies want to track their employees. It is a well-known fact that monitoring tools are good not only for monitoring the children but also for monitoring the employees.

II. Literature Review

With the increasing use of smart-phones and its services by almost people of every age group [3]. It needs to secure its usage for the children or your descendants. For this Remote Monitoring Tools developed that provide different features to monitor the client's mobile. In the start of the ear smart-phones, there were no such apps that monitor the smart-phones remotely. However, with recent advancements in smart-phone technology and drastic increase in usage make them necessary for the smart-phones. Now it is time to implement the necessary remote features in one place to keep pace with upcoming needs.

There is some already existing application for monitoring the mobile phones. Like:

a) Spyera
b) Highster mobile
c) AirDroid
d) mobile spy
e) Children Tracker
f) Cell tracker

A. Spyera

Spyera is the best spy phone application for monitoring smartphone [4]. Spyera records all phone activities. Spyera is compatible with Android, iPhone, Blackberry and windows mobile phones. Spyera is the only spy app that provides call interception to listen to live call, and it runs in the background completely hidden.

Call listening (listen to the live calls happening on the target device), Call recording (record phone conversation as hidden sound file), Location tracking (use GPS positioning to show the device position), Read SMS messages (read all incoming and outgoing messages), See call history (view call history), Remote control (manage Spyera on your web account) and Application activity (detect install, uninstall and usage of apps) are the main features of Spyera. Its price is 189.00 USD.

B. Highster Mobile

The Highster mobile app is very useful mobile phone monitoring app [5]. It is used to monitor employee and kids. Highster mobile is among the most the most advanced cellular mobile tracking and monitoring application used to record messages and track call information from a cellular device.

Text messages (old), Calls, Photos & Videos, E-mails & Browser History and GPS Location (position will be shown on google maps) are the main features of Highster mobile. Its price is 69.99 USD.

C. MobileSPY

MobileSPY is the premier monitoring software for the Android operating system [6]. It works with all Android models. It helps the parents to learn about their child's smartphone.

Live control panel, Instant GPS location, Text message logging, and Photo logs. GPS location logs, Phone call info. E-mails & SMS logs and live screenshots. Its price is $ 64.97 for 3 months.

D. Weakness of these apps

1. Mobile-Spy and Highster do not control camera Application.
2. Spyera and Mobile Spy need root to operate some of its features.
3. Extremely Expensive.
4. Monthly subscriptions.

III. TECHNOLOGIES USED

There are some technologies that are used for developing this application.

1. PHP
2. MySQL
3. CSS (Cascading Style Sheets)
4. Android Studio IDE (Integrated Development Tool)
5. Android SDK
6. JDK
7. Adobe Dream Weaver
8. Server Used (Apache, WAMP)
9. Web Service

IV. DESIGN & IMPLEMENTATION

In software engineering, use cases summarize the some of the relationships between use cases, actors, and systems [7]. In our Project android monitoring mechanism-without root, there is one actor that is an admin. Admin can login to the admin panel, see the data of the monitored device.

Admin actor will login to the admin panel. There can be the possibility that he is not an authenticated user or password will not match. Admin actor will then try again and sign into the admin panel. Admin panel can view the data of the monitored device like messages, call history, photos, and contact list. Admin can also view the current location of the client mobile. Admin can also control the camera of the monitored device. Fig. 1 shows the use case diagram of the admin panel.

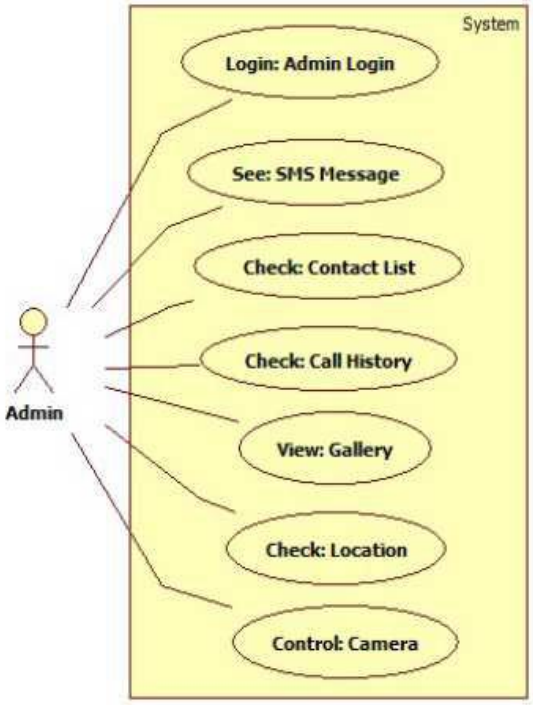


Fig. 1: Use Case Diagram

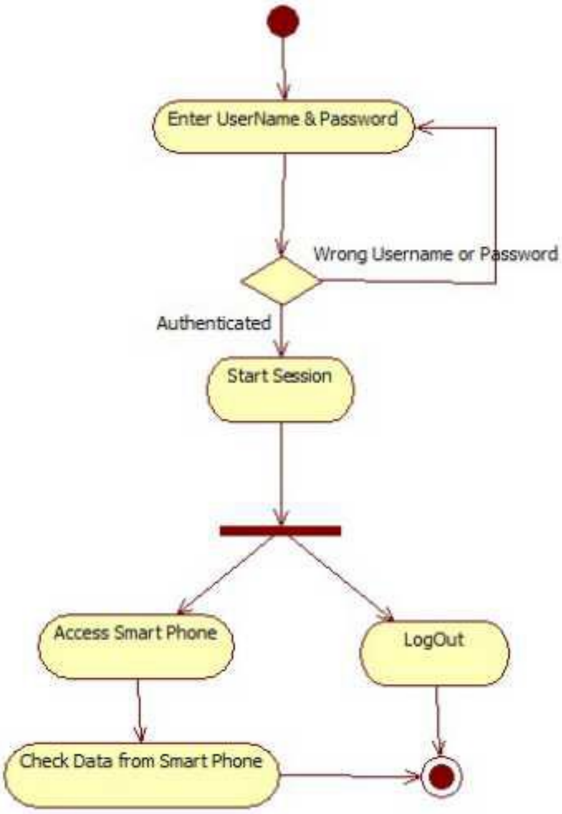

Enter UserName & Password
Wrong Username or Password
Authenticated
Start Session
Access Smart Phone
LogOut
Check Data from Smart Phone

Fig. 2: Activity Diagram (Admin)

Activity diagrams are graphical demonstrations of workflows of step by step events and arrangements with support for best, repetition and concurrency. In the Unified Modeling Language, activity diagrams are proposed to model both computational and structural procedures (i.e. workflows). Fig. 2 shows the activity diagram of the scenario.

The activity diagram in fig. 2 shows that first of all the admin login into the system. If it is an authenticated user, then the home page will be open. On the other hand, if it is not an authenticated user then it will be redirected to the login page.

A Sequence diagram is a communication figure that shows how items work with one another and in what direction. It is a paradigm of a Message Sequence Chart. A sequence diagram shows object communications organized in time sequence. Fig. 3 shows the sequence diagram of the project.

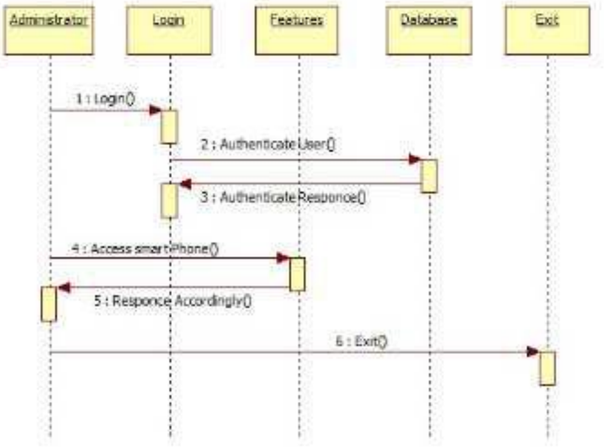


Fig. 3: Sequence Diagram

An entity-relationship diagram (ERD) is a graphical representation of a system that shows the relationship between people, objects, places, concepts or events within that system.

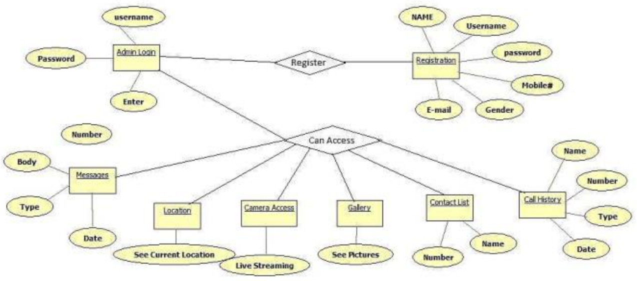


Fig. 4: Entity Relationship Diagram

First Admin Must Login to its admin Panel to see the data of the specific client.

My database name is MYDB contain Following Tables:

1. Login
2. Call History
3. Contacts
4. Messages
5. Photo Gallery
6. Location

Registration Login Contains The Information of Login Keys of Different Administrators. This table has two fields, username, and password. Admin sets its username at the time of registration, and IMEI number of the smart-phone (which will be monitored) will be used as a password. The username and password fields must be matched with the database record to login into the system.

Username: contains the username of the Admin or sub-admin.

Password: IEMI number will be used as password of the Admin.

Call history table in the database has the five columns, named as ID, Name, Number, Type, and Date. In the first column, IDs stored. In the second column, the name of the caller stored. In third column caller, contact number stored. In the fourth column, type of the calls stored like it was an incoming call, outgoing call or missed call. In the fifth column, date stored that shows the date of the call.

Contact list table in the database has the three columns, named as ID, Name, and PhoneNumber. In the first column, IDs stored. In the second column, the name stored. In third column caller, contact number stored.

Location table in the database has the two columns, named as Latitude and Longitude. In the first column, Latitude of the monitored device stored. In the second column, Longitude of the monitored device store.

Photo table in the database has the two columns, named as ID and Image. In the first column, ID's stored. In the second column, Images of the monitored device store.

Message table in the database has the five columns, named as ID, Number, MsgType, MsgBody, and MsgDate. In the first column, IDs stored. In the second column, the contact number of the sender or receiver of the message, of the monitored device stored. In third column caller, message type stored that either it received or sent. In the fourth column, the full content of the message stored. In the fifth column, date of that message stored.

V. DEPLOYMENT, RESULTS & DISCUSSION

The Android Monitoring Mechanism-Without Root is an online Android app which works online, taking data from the online android phone, which will upload on to the database using a web service. Then a Web service Takes data from the android using its method [8]. Once the data is uploaded into the tables of Database, then it waits for server request to get Data and responds to the request of the server. On Website on the Login page, The App sends the credentials of the user and verify from the server by sending a request to web service, web service responds to the Website and verifies the credentials. If Id and clients Mobile address match the app goes on Second Screen, from which user can see posts which are updated by data taken from Clients Android Phone [9]. The user can refresh the page if there are new posts the App. The following Fig. 5 shows that how this application works.

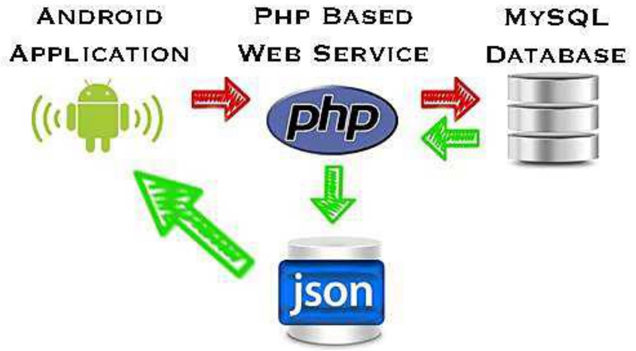
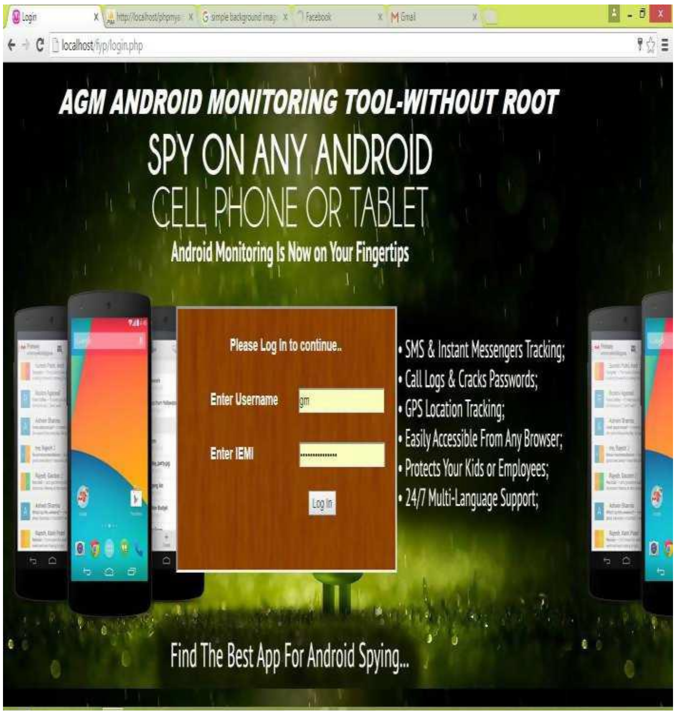


Fig. 5: App Working Process is shown in this Figure

Fig. 6 shows the first page of the website, requires login to enter.



AGM ANDROID MONITORING TOOL-WITHOUT ROOT

SPY ON ANY ANDROID CELL PHONE OR TABLET

Android Monitoring Is Now on Your Fingertips

Please Log In to continue..

Enter Username gm

Enter IEMI ••••••••••••

Log In

- SMS & Instant Messengers Tracking;
- Call Logs & Cracks Passwords;
- GPS Location Tracking;
- Easily Accessible From Any Browser;
- Protects Your Kids or Employees;
- 24/7 Multi-Language Support;

Find The Best App For Android Spying...

Fig. 6: Admin Login Page

After entering Valid Parameters. The IEMI number of the mobile (that you want to monitor) is used as the password to monitor that device. Fig. 7 shows the Dashboard for Administrator, Admin can do all the above actions.

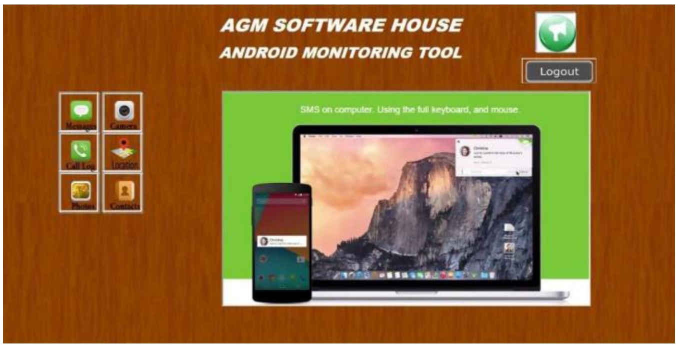
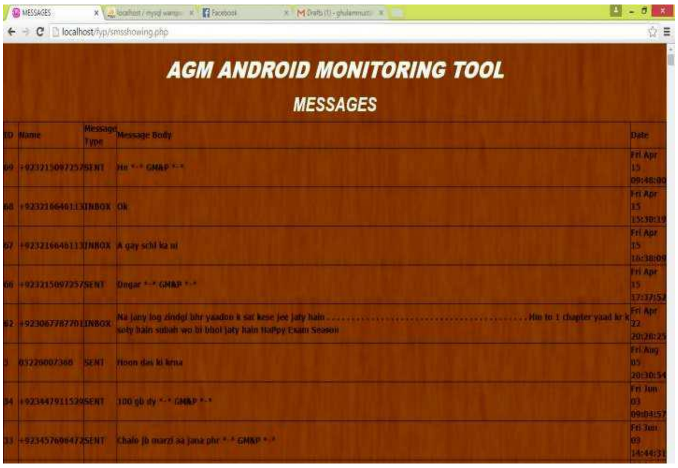


Fig. 7: Admin Panel Page

a) By clicking on "Messages" button, a new page will be open. The admin can see all the messages on the monitored device.
b) By clicking on "Call Log" button, a new page will be open. The admin can see call history of the monitored device.
c) By clicking on "Photos" button, a new page will be open. The admin can see all the photos of the monitored device.
d) By clicking on "Camera" button, a new page will be open. The admin can see the surrounding environment of the monitored device.
e) By clicking on "Location" button, a new page will be open. The admin can see the location of the monitored device.
f) By clicking on "Contacts" button, a new page will be open. The admin can see all the contacts of the monitored device.



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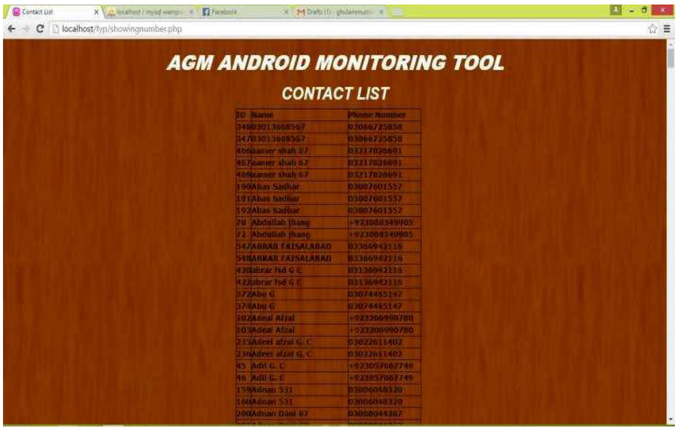
MESSAGES

ID	Name	Message Type	Message Body	Date
69	+923215097257	SENT	Hn *-* GM&P *-*	Fri Apr 15 09:48:00
68	+923216646113	INBOX	Ok	Fri Apr 15 15:30:19
67	+923216646113	INBOX	A gay schl ka ni	Fri Apr 15 16:38:09
66	+923215097257	SENT	Dngar *-* GM&P *-*	Fri Apr 15 17:37:52
62	+923067787701	INBOX	Na jany log zindgi bhr yaadon k sat kese jee jaty hain.....................................Hm to 1 chapter yaad kr k soty hain subah wo bi bhol jaty hain HaPpy Exam Season	Fri Apr 22 20:20:25
3	03220007368	SENT	Hoon das ki krna	Fri Aug 05 20:30:54
34	+923447911529	SENT	100 gb dy *-* GM&P *-*	Fri Jun 03 09:04:57
33	+923457696472	SENT	Chalo jb marzi aa jana phr *-* GM&P *-*	Fri Jun 03 14:44:31

Fig. 8: Message Display Activity

This page display all the messages of the monitored device as shown in the fig. 8. It also displays the type of messages that either it is received or sent along with the date.



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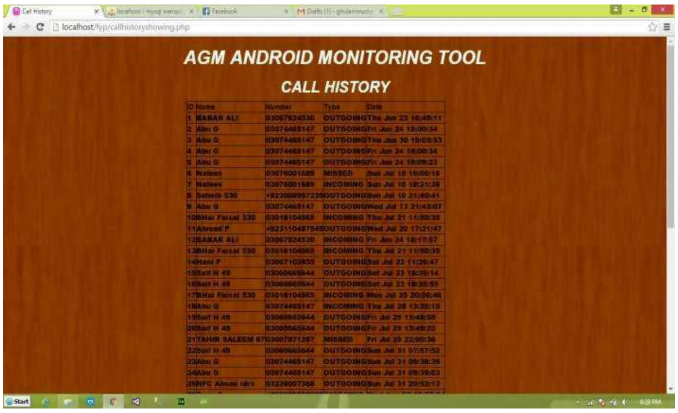
CONTACT LIST

ID	Name	Phone Number
346	03013668567	03066725858
347	03013668567	03066725858
466	aamer shah 67	03217826891
467	aamer shah 67	03217826891
468	aamer shah 67	03217826891
190	Abas Sadhar	03007601557
191	Abas Sadhar	03007601557
192	Abas Sadhar	03007601557
70	Abdullah jhang	+923088349905
72	Abdullah jhang	+923088349905
547	ABRAR FAISALABAD	03366942116
548	ABRAR FAISALABAD	03366942116
420	abrar fsd G C	03136942116
422	abrar fsd G C	03136942116
372	Abu G	03074465147
374	Abu G	03074465147
102	Adeal Afzal	+923206990780
103	Adeal Afzal	+923206990780
235	Adeel afzal G. C	03022611402
236	Adeel afzal G. C	03022611402
45	Adil G. C	+923057667749
46	Adil G. C	+923057667749
159	Adnan 531	03006048320
160	Adnan 531	03006048320
200	Adnan Dani 67	03008044367

Fig. 9: Contacts Display Page

This page shows all the contacts of the monitored device in alphabetic order from ’A’ to ’Z’ as shown in the fig. 9.



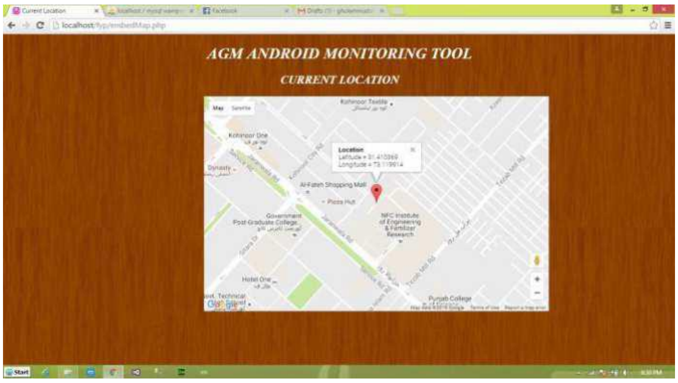
AGM ANDROID MONITORING TOOL

CALL HISTORY

ID	Name	Number	Type	Date
1	BABAR ALI	03067824530	OUTGOING	Thu Jun 23 16:49:11
2	Abu G	03074465147	OUTGOING	Fri Jun 24 18:00:34
3	Abu G	03074465147	OUTGOING	Thu Jun 30 19:03:53
4	Abu G	03074465147	OUTGOING	Fri Jun 24 18:00:34
5	Abu G	03074465147	OUTGOING	Fri Jun 24 19:09:23
6	Nafees	03076001689	MISSED	Sun Jul 10 16:00:16
7	Nafees	03076001689	INCOMING	Sun Jul 10 18:21:38
8	Sohaib 530	+923089997239	OUTGOING	Sun Jul 10 21:40:41
9	Abu G	03074465147	OUTGOING	Wed Jul 13 21:43:07
10	BHai Faisal 530	03018104565	INCOMING	Thu Jul 21 11:50:35
11	Ahmad P	+923110497549	OUTGOING	Wed Jul 20 17:21:47
12	BABAR ALI	03067824530	INCOMING	Fri Jun 24 18:17:57
13	BHai Faisal 530	03018104565	INCOMING	Thu Jul 21 11:50:35
14	Hani P	03067103855	OUTGOING	Sat Jul 23 11:26:47
15	Saif H 48	03068665644	OUTGOING	Sat Jul 23 18:38:14
16	Saif H 48	03068665644	OUTGOING	Sat Jul 23 18:38:55
17	BHai Faisal 530	03018104565	INCOMING	Mon Jul 25 20:06:48
18	Abu G	03074465147	INCOMING	Thu Jul 28 13:35:15
19	Saif H 48	03068665644	OUTGOING	Fri Jul 29 13:48:58
20	Saif H 48	03068665644	OUTGOING	Fri Jul 29 13:49:23
21	TAHIR SALEEM 67	03007971267	MISSED	Fri Jul 29 22:00:36
22	Saif H 48	03068665644	OUTGOING	Sun Jul 31 07:57:52
23	Abu G	03074465147	OUTGOING	Sun Jul 31 09:38:35
24	Abu G	03074465147	OUTGOING	Sun Jul 31 09:39:03
25	NFC Ahsan idrs	03226007368	OUTGOING	Sun Jul 31 20:52:12

Fig. 10: Call History Display Page

This page shows the call history of the monitored device as shown in fig. 10. It also displays the type of call that either it is incoming, outgoing or missed along with the date.



AGM ANDROID MONITORING TOOL

CURRENT LOCATION

Location
Latitude = 31.410369
Longitude = 73.119914

Fig. 11: Location Display Page

This page shows the current location of the user at any time. It also shows the latitude and longitude of the user as shown in fig. 11.

VI. References

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