A Survey on ETS Using Android Phone

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***Abstract*- The Rapid growth of android applications is creating a great impact on our lives. The aim of this survey Employee monitoring system using android mobile is, to automate the employee monitoring process in company by their Employee's office cell phone and also improve the organizational growth of the company. In this paper, we discuss about the design and Implementing admin application, employee application and Centralized server for monitored company employee's using android technology. In this system we are providing dynamic database utility which retrieves data or information from centralized database. The android application in smart phone contains all information about the employee phone uses like their all Employee SMS history, Employee call Logs, Employee Locations, Data uses, Web browser history, and unauthorized data uses details. All communication between the Employee phone and the admin is done through 3G network technology. This application is user-friendly. This system improves accuracy in managing employees of the company by saving time, reducing manager efforts; avoid the unnecessary use of company phones which are provided to the Employee for their office use only. This System is also connects to the centralized server for accessing detailed history of employee phone uses. The main aspect of our paper is Managers to navigate their all company Employees through mobile phones and know the employee behavior (Good-Loyal/Average/Bad).**

***Index Terms*- Smart phone, Android application, GPS, K-Means Algorithm, dynamic database.**

I. INTRODUCTION

Android is an open mobile platform developed by the Open Handset Alliance (OHA) led by Google, Inc. The Android platform consists of several layers: the Linux kernel, an application framework, the Dalvik virtual machine (VM), and native libraries. The Linux kernel provides basic operating system services and hardware abstraction for the upper software stacks. Native libraries support the miscellaneous functionalities of web browsing, multimedia data processing, database access, and GPS reception optimized for a resource-limited hardware environment. The Dalvik VM runs Java code with low memory demand as being register-based. At the top of the layers, Android provides the component based programming framework so that users can easily build their own applications.

An Android application is written with new and reusable application building blocks, such activities as; broadcast intent receiver, service, and content provider. After an application is written, it is deployed in a Zip-compatible archive, .apk file (Android package file). An Android package file contains codes, resources and a special XML file called the Android Manifest file. The manifest file contains basic information about an application such as the package name, component descriptions, and permission declarations. Employee Tracking System using network technology is supported by Organization. Employee tracking adopts a mobile cell phone network. Based on the experiences and findings of the field experiments, we propose a new generation Employee tracking system. The system has the following five requirements. Easy to implement and add functions, able to manage many employee efficiently, Adaptive for mobility of employee who is working in concern.

Secure against suspicious individuals, Low cost. To satisfy the above requirements, the proposed new generation employee tracking system adopts 3G communication function between Android mobile terminals, and collects employee information using Global positioning system. In addition we are adopting cloud technique for storing and retrieving relevant employee details such as incoming call, outgoing calls, and text message.

The new generation employee tracking systems consist of telephony manager for identifying the information about the employee. Android mobile terminals which holds each employee and server which stores employee tracking information. The Collected tracking information in this system

contains the position and time information of android mobile terminals.

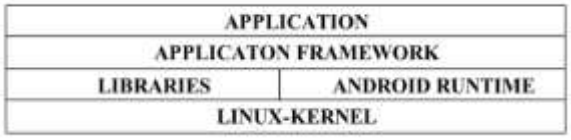

Figure 1. Android Architecture

The Android SDK provides the tools and APIs necessary to begin developing applications on the Android platform using the Java programming language. Every Android application runs in its own process, with its own instance of the Dalvik Virtual machine. Dalvik has been written so that a device can run multiple VMs efficiently. The Dalvik VM executes files in the Dalvik Executable (.dex) format which is optimized for minimal memory footprint. The VM is register-based, and runs classes compiled by a Java language complier that have transformed into the .dex format by the included "dx" tool. The Dalvik VM relies on the Linux kernel for underlying functionality such as threading and low-level memory management. Android uses SQLite which is a powerful and lightweight relational database engine available to all applications. There are various features available in the android and they mainly focuses on application framework enabling reuse and replacement of components, Dalvik virtual machine optimized for mobile devices. Integrated browser based on the open source WebKit engine. Optimized graphics powered by a custom 2D graphics library; 3D graphics based on the Open GLES 1.0 specification (hardware acceleration optional). SQLite for structured data storage Media support for common audio, video, and still image formats. GSM Telephony (hardware dependent). Bluetooth, EDGE, 3G, and WiFi (hardware dependent).Camera, GPS, compass, and accelerometer (hardware dependent). Rich development environment including a device emulator, tools for debugging, memory and performance profiling, and a plug-in. for the Eclipse IDE.

II. RELATED WORKS

What really makes android compelling is its open philosophy, which ensures that any deficiencies in user interface or native application design can be fixed by writing an extension or replacement. Android provides you, as a developer, the opportunity to create mobile phone interfaces and applications designed to look, feel, and function exactly as you imagine them. Information is most important commodity of digital world. Android applications are written using java as a programming language but are executed using a custom virtual machine called Dalvik rather than a traditional java VM.

Abhishek Barve[6] "Android Based Remote Monitoring System" in 2012 present an approach for making GUI in android application which can access data stored in dedicated web server.

R. Anand "Mitter-bitter monitoring system using android smartphone's" present an approach which tracks incoming, outgoing calls, SMS and location of employee. Anjor Jadhav [3] developed "Track Your Buddies" in 2013 present an approach which calculates the distance between the user and the located friends resulting interest being shown to the ones who are nearest to the user and send SMS to the nearest user.

Ms.BhagyaPandurangaNaik[4] developed "SAR operation based on call log and location details using GPS and Android Smartphone" in 2013 present an approach in which the authorized agency will know all the incoming call, outgoing calls, text messages send by an unknown person to that cell phone.

Al-Mazloum, E. Omer, M. F. A. Abdullah[5] work on GPS and SMS based tracking provides solution for tracking children by parents using Smartphone's, they propose an architecture which includes two Smartphone's one being client(child) another being server (parent), whenever parents wants to track children, parents will send request through SMS and on client side the active listener listens to that specially formatted message responds back with location details.

III. EXISTING SYSTEM

In the existing system tracking of incoming, outgoing calls and SMS is done. The android terminal is connected to Bluetooth and wireless LAN. Tracking is done by fixing tags in different location to identify the exact position of employee. Tracking is made to shorter distance while using Bluetooth. The tracking system is not secure when compared to the proposed system. The communication link to the management server is managed by wireless LAN which is

relatively slow when compared to the 3G network. The dynamic paring of mobile terminal is mandatory. The network is more complex and it is not reliable. The message is transferred through wireless LAN and it is not secure. Calculating employee behavior is not possible.

A. Drawbacks of Existing System

The manager cannot trace out the Employee‘s activities like web history, unauthorized call history and unauthorized web list in the mobile.

- Managers cannot know Employee’s current location.
- The manager cannot know the Employee‘s behavior.
- Manager cannot get alert message on mobile phone.
- Through Bluetooth we can track one user at one time.
- Security can easily break.
- Limited to short distance.

IV. PROPOSED SCHEME

We are trying to implement some functions for employee monitoring system that allows Managers to monitor their Employee's office cell phone. A manager can be seen all incoming and outgoing calls, text and multimedia messages. The Manager can also monitor where their Employee are (through GPS, is the system that enables to know the location), access a history of where they've been and set up alerts if their Employee are going outside of approved geographical zones. Android mobile terminal are connected to WIFI network for data transfer between two mobile terminals effectively. Tracking can be made without any distortion in the network. Because of WIFI network data is stored and retrieved in sever at very high speed. This system uses Android based mobile phones for the software to be run. Employee should have an Android based device and the Managers may have any kind of mobile devices. Manager can get alerts from the Employee in SMS format only. Manager stores all the details of employee‘s cell phone in the centralized server like the details of incoming call, text and the location update of their Employee. Managers can view these details later by logging into the centralized server. The manager can calculate the behavior of their Employee‘s by using k- means clustering algorithm. Message is sent to the mobile terminal securely by using AES encryption algorithm.

A. The Features of the proposed system

The manager can track Employees all day to day activities like SMS, call, data usage, unauthorized call/website list. It also brings the current location of the Employee. If the Employee crosses the specified Geographical location then an alert message will be sent to the Manager's mobile as a SMS format. Managers may later login into the centralized server and view the details of their Employee‘s mobile usage. The manager can calculate the behavior of their employee‘s.

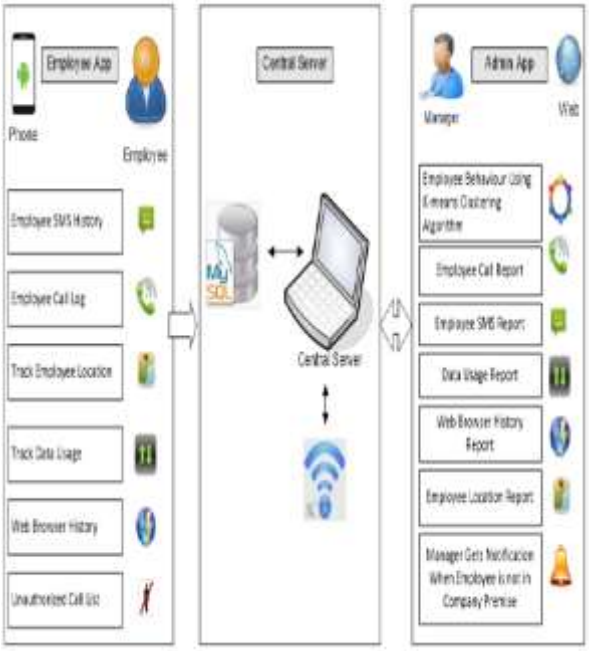

Figure 2: Architecture of proposed system

B. Modules of the system

-Employee Application (module1)

This module is made for the use of normal employee which is works in the organization. In the side of user consist of android phone contain call log, SMS, web browser features. They will be enabled with the 3G connectivity.

-Admin Application (module2)

These desktops are especially for the use of the Employee monitoring. The manager should be able

to control the function of whole organizational employee from a single centralized server.

C. Sub Modules

-Call Logs

Employees should not use their company phone for personal use, if they call to an unapproved number from employee list, It will be logged on to server. Calls Logs should show the details of incoming and outgoing calls history from employee's phone like date, time, and phone number.

-Message History

Manager should get the message history from employee cell phone like text messages (inbox/sent/draft) with date and time of employee cell phone.

-Track Employee Location By using GPS

Employee location gets by using the GPS. If employee goes outside of approved geographical zones then a notification is sent to managers.

-Unauthorized Call/Website List

Managers should be able to update list of unauthorized websites that should not be accessed by employee. Managers can dis-approve the international calls for the employee.

-Know the Employee behavior

No of unapproved calls, exceeding data usage is calculated for each employee then k-means clustering algorithm is applied on these parameters to calculate the mean a different clusters. Each cluster indicates different employee behavior.

-Web Browser History

The module should show the web browser history of employee's phone and store web details on server. List of authorized sites is maintained in server database.

-Data Usage

The module should show data usage statistics in the form of MBs of data. Manager can easily watch on data usage.

D. Methodology

User authentication is one of the major factors in the proposed system. Every employee is authenticated based on his/her unique user identification number. This unique identification number is the number which is given by the office. The identification number along with other information is also saved in the employee device.

At first employee has to install the required system APK files into their android device. Mobile location service has to be on when the system was running. If mobile location service is off then the whole process will not go further. Mobile location service helps to trace the employee location. When the employee enters the office area, android device of the employee is automatically connected to the office internet and a message is sent to the office sever with the employee id and local time of the device which is counted as login time of that employee. When employee leaves the office area, a message is sent to the office server with employee id and local time which is counted as logout time. Figure 3 depicts the overall methodology of our proposed system.

Details about employee like history of incoming calls, outgoing calls, SMS history, web browser history.

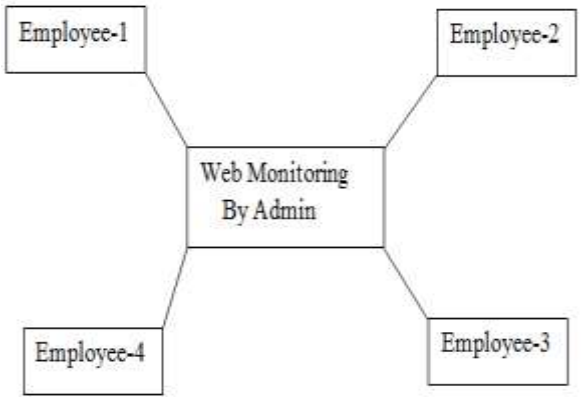

Figure 3: Basic block diagram

Data usage, unauthorized call list and location of employees are provided to the manager and it helps the manager to determine the behavior of employees working in the company. The system uses JSP for server side implementation. The database used is mysql as it is open source and user friendly. Apache tom-cat and Xampp along with Android Studio are used designing the system. The database connectivity is done and thus information is displayed to the manager in the form of JSP and HTML web pages and thus it helps the manager to improve the output.

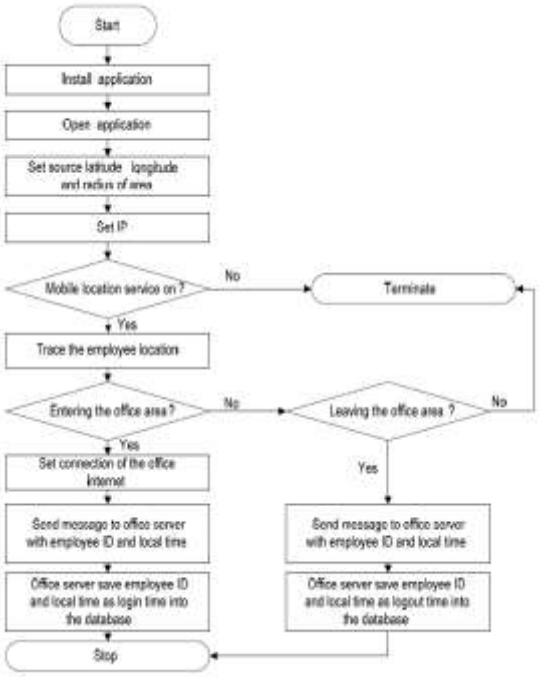

Figure 4: Flow of operation for the proposed system

V. RESULTS

We are getting result from this project it's just expecting result. It's part of knowledge about manager and employee how they can work on server. The expected output of modules is as follows:

Manager

- Manager can register the employee details and self-login into the server.
- Manager can monitoring on employee who work regularly within a time period and also view their call logs, message logs, data usage by employee mobile phone, he also trace current location of employees and see web browsing history.

Employee

- Employee logged into the server by manager and taking task for a period and completed in that time. Employee also follows the rules of boundary crossing, credential call logs and unauthorized websites which is given by the company.

Database as a Server

- Keeps to store information of manager and employee.
- GPRS system can track employee's current location and store into the database.

VI. POSSIBLE FUTURE WORK

Now, this Employee Tracking System only implement in Android smartphone but in future the same system could be tried to implement in different mobile phones like Windows and Apple phones. Also separation of data i.e. personal and corporate data can be applied.

VII. CONCLUSION

Employee monitoring system using android smartphone is presented in this project. Using this system it is possible to track all the activities of employee's cell phone which is provided by particular organization and it is also possible to know manager behavior of employee's according to their cell phone activities like Incoming and Outgoing call history, SMS history, Web history, Data usages. It is also possible to track employee's current location. It is convenient for manager to convey the message to an employee using information and communication technology.

REFERENCES

[1] Omar Aboulolaa, Mohammed Alsaqera, Brian Hiltona, Tom Horana(2015) "Performance Valuation in Small Geofence: Reliability, Accuracy,and Battery Drain in Various Tracking Profiles," ELSEVIER International Conference on Humanitarian Technology, 337 – 348

[2] YuryZhauniarovich, Giovanni Russello Mauro Conti, Bruno Crispo, and Earlence Fernandes(2014) "MOSES: Supporting and Enforcing Security Profiles on Smartphones" IEEE transactions on dependable and secure computing.

[3] AnjorJadhav, Savita Kharje, Pooja More and Prof. Nasim Shah(2013) "Track Your Buddies", proceedings of national conference on new horizons in IT-NCNHIT.

[4] MS.BhaghyaPandurangaNaik, MS. Chaitra. V, MS. Nida R. F, MS. Varalakshmla(2013) "SAR Operation based on call log and location details using GPS and Android smart phone"

,International Conference on Electronics and Communication engineering.

[5] M. F. A. Abdullah, A. Al-Mazloum, E. Omer(2012) "GPS and SMS-Based Child Tracking System using Android Smart Cell Phone," International Journal of Energetic, Computer, Electrical, Electronic and Communication Engineering Vol. 7, No: 2, 2013 171

[6] AbhishekBarve, Pragnesh Shah(2012), "Android based remote monitoring system", International Conference in recent trends in information technology and computer science.

[7] Ajahar Ismailkha Pathan, Amit Sinhal, "Encode Decode Linux based Partitions to Hide and Explore File System", International Journal of Computer Applications(0975–8887), Volume75 No.12, Aug 2013

[8] Multiple SIMs (2011) "A Framework Based on Software Restructuring Approach" Communications and Mobile Computin(CMC), Third International Conference Pages: 178-181.

[9] Jangid sheetal Kailash, Vaishnika Balmukund Patil, Neha Vinay Patil, Ajahar Ismailkha Pathan, "Behavioural, Emotional State Based Music Selection & Playlist Generating Player", International Journal Of Current Engineering And Scientific Research (IJCESR), 2394-0697, Volume -4, Issue-12, Dec 2017

[10] Jijina N., Vishnu Ravi G., S. Viswanathan Rao, "An Android Powered Wi-Fi Network", International Journal of Computer Science And Mobile Computing.