

Employee Monitoring System Using Android Smart Phone

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Abstract - The Rapid growth of android applications is creating a great impact on our lives. The aim of this research 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).

Keywords - Smart phone, Android application, GPS, K-Means Algorithm, dynamic database.

I. INTRODUCTION

Android Smartphone mobile application is platform, developed by the Open Handset Alliance (OHA). This Android system consists of 4 layers: the Linux kernel, native libraries, the virtual machine, and an application framework. In this android architecture Linux kernel provides basic operating system services and hardware abstraction to the upper level software stacks. The Native libraries provides functionalities of web browsing, multimedia data processing, database access, and GPS tracking optimized for a resource-limited hardware environment. The Virtual Memory runs Java code with low memory acceptance. At the top layer of the Android architecture provides a component-based programming framework because of that user can easily build their own applications.

The Employee Monitoring System use network Technology which is supported by business Organization. Employee tracking system adopts a smart phone network. Based on the previous experiences such as inconsistency in the data, loss of data and findings of slow speed of 2G networks,

we are implementing a new generation Employee tracking system called as proposed system. This proposed system has the five requirements respectively. For Easy to implement and add no. of functions, ability to manage many employee efficiently, tracking of employee easily for checking either who is present approved area or unapproved area. Very secured and Low cost also. To satisfy the above all requirements, the proposed employee monitoring system adopts 3G communication network function between Android mobile terminals, and collects users information using Global positioning system(GPS). In additional we are use one new module such as know the employee behavioure and also use cloud technique for storing and retrieving related employee details such as incoming call, outgoing calls, and text message. The proposed employee monitoring system consists of telephony manager for getting the information about the employee. In this application the terminals which is at employee side is Android mobile and the centralized server which is used to stores employee tracking Information. The Collected all information in this system contain the

unauthorized use of websites, data uses in MBs, position of employee and time information of android mobile terminals. When the employee crosses the approved area of the company then an immediate alert message will be sent to the manager's mobile phone in the form of text format. By using this system it is possible for the manager in organization to calculate the behaviour of the employee by using K-means clustering algorithm which can help for improving the organizational growth.

II. LITERATURE REVIEW

➤ *EXISTING SYSTEM:*

In the employee monitoring system before the implementation of proposed system another system is their existence called existing system. In that system the tracking of the employee is done by fixing tags in different location for identifying the actual position of an employee. Also the android smart phone is connected to Bluetooth and wireless LAN. So the tracking of employee done to very shorter distance by using Bluetooth. The tracking system in existing is not secure as compared to the proposed system because the communication link between centralized servers and employee phone is maintained by wireless LAN which is relatively slow as compared to the 3G network. Also the dynamic pairing of mobile terminal is mandatory. The communication network is more complex and it is not reliable. The alert message which is transferred through wireless LAN is less secured.

A. *DRAWBACKS OF EXISTING SYSTEM*

In the existing system the Managers cannot get the Employee's activity information in the mobile through text, like SMS and Calls. The Managers doesn't know the Employee's current location. There is a possibility of data loss during the message transfer from one mobile terminal to another mobile terminal due to 2G. . And also in existing system the employee behaviour is not calculated so that organizational growth may be

Less, to overcome this problem we can implement the proposed system.

➤ *PROPOSED SYSTEM ARCHITECTURE:*

The problem which is occurred in the existing that are overcome in proposed system. In this application we are implemented some functionality by using android phone for manager to handling of the company employee to avoid the misuse of their office phone. In this tracking system also uses one important part such as telephony manager which is used to track all incoming, outgoing calls and text messages multimedia messages etc. The Android mobile terminal in the hand of employee is connected to high speed 3G network for transferring of effective data between two mobile terminals. So the manager can be Track the employee at a very high speed and because of the high speed network there should be not any interrupt in the network. This proposed system is very secured and reliable as compared to the existing system because of the high speed 3G networks and also provided web service security to this application.

The employee tracking system use centralised server for retrieving of the detailed information of the employee phones uses like for the incoming and outgoing calls the centralised server stores its call date, time and duration. For messages stores its date and time etc.

So whenever manager wants detailed information about the related employee he will login on to the centralized sever, It very beneficial for the organization in case of business improvement purpose, because if any employee will misuse the company phone it will immediately inform to manager in the form of text and manager will take appropriate action on that employee. In this system also use GPS tracker for knowing the location of person or things. It consists of minuscule chip which is attached to the object to be tracked. This chip will give out signals which are tracked by the satellite which sends data to the earth giving the exact location of the things or object.

Mitter – Bitter Monitoring System Using Android

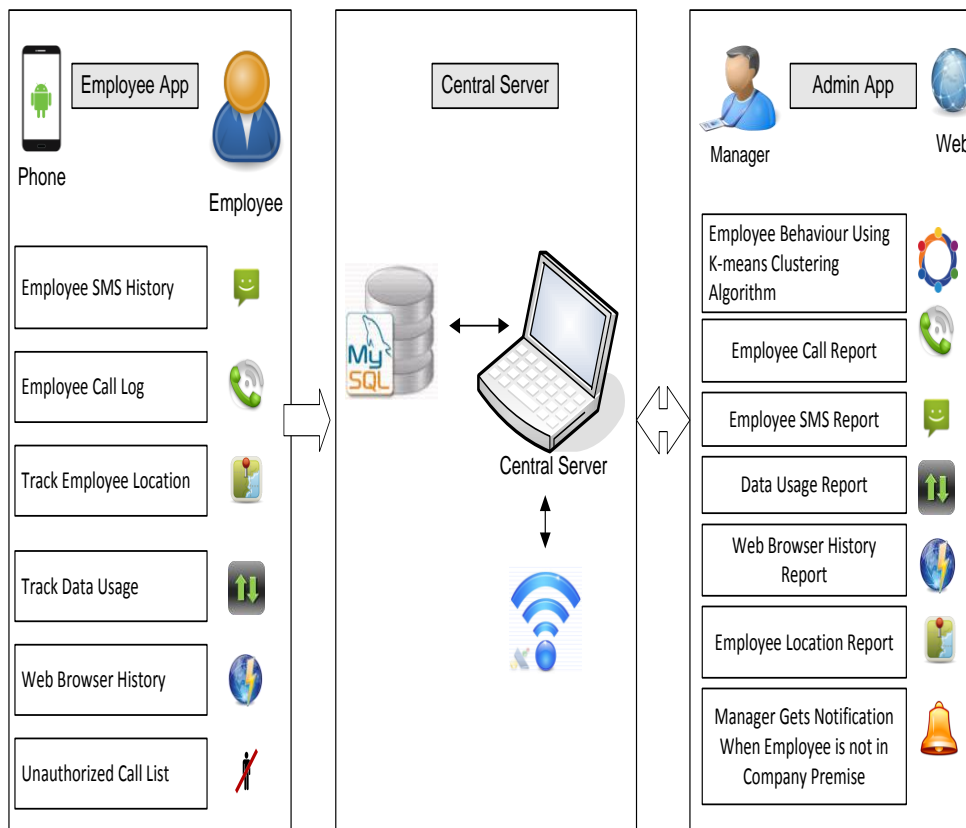


Fig 1: Employee monitoring system using android Smart Phone

III. SYSTEM DESIGN

The application can use Android based cell phones for running the implemented software. In this system we can use different modules, and main two apps are employee app and server app. And whole employee phone uses data will be stored in centralized server app. Mobile device which is in the hand of the Employee should be an Android device and the Managers may have take any mobile devices, since the manager can get the alert through text messages only. For detailed data it can be stored in the centralized server like the details of incoming call, text and multimedia messages and the timely location update of their Employee. Managers may later login into the centralized server and view the details of their Employee’s mobile usage.

When a mobile terminal communicates with another mobile terminal, it is necessary to establish pairing between two mobile terminals before their communication occurs between two terminals. When the employee mobile terminal

crosses a particular boundary region an immediate alert message send to the manager mobile phone using 3G network and simultaneously messages stored in the centralized server. Data stored are secured using encryption algorithm

- USER TABLET(module1)
 - This table 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.
- MANAGER'S TABLET(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.

- He can access any phone uses information and should be able to take decision on that.

➤ SUB MODULES

1. 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.

2. Message History

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

3. 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.

4. Data Usage

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

5. 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.

6. 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.

7. Know the employee Behaviour

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 and different clusters. Each cluster indicate a different employee behavior (Good-Loyal/Average/Bad)

IV. SYSTEM SPECIFICATION

The technologies which are used to implement the system are:

1. The Android mobile terminal is Google Dev Phone 1.

2. The operating system for the terminal is Android,

We develop mobile ad hoc network

3. Java programming language and android SDK, JDK is used to develop the software.

4. JSP/SERVLET is used for Database Access from the central server.

5. MY SQL it is a light weight Database which is going to be used for database access from the server.

V. ALGORITHM

1. K-Means Clustering Algorithm:

K-means clustering is a method of vector quantization, originally from signal processing, that is popular for cluster analysis in data mining. *K-means* clustering aims to partition n observations into k clusters in which each observation belongs to the cluster with the nearest mean, serving as a prototype of the cluster. This results in a partitioning of the data space into k cells.

Given a set of observations $(\mathbf{x}_1, \mathbf{x}_2, \dots, \mathbf{x}_n)$, where each observation is a d -dimensional real vector, k -means clustering aims to partition the n observations into k sets ($k \leq n$) $S = \{S_1, S_2, \dots, S_k\}$ so as to minimize the within-cluster sum of squares (WCSS):

$$\arg \min_{S} \sum_{i=1}^k \sum_{\mathbf{x}_j \in S_i} \|\mathbf{x}_j - \mu_i\|^2$$

Where, μ_i is the mean of points in S_i .

VI. CONCLUSION

In this paper, we have implemented the new generation employee monitoring system and system features to meet the organization requirements. By using this system it is possible for the manager to track an employee in the organization and calculate the behaviour of the employee using K-Means clustering algorithm. In this application it is also possible for the manager to know all the incoming calls, outgoing calls and text messages sent by an unknown person to the employee.

Using telephony manager technique, the proposed employee monitoring system can get detailed information about mobility of employee by adjusting network.

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