EMPLOYEE SURVEILLANCE SYSTEM USING ANDROID SMART PHONE

M.D. Nirmal[1], Rohit Koul[2], Halne Atul[3], Gagare Tejaswita[4], Kharde Mayura[5]

[1] Assistant Professor, Computer Engineering, Pravara Rural Engineering College, Maharashtra, India
[2] Student, Computer Engineering, Pravara Rural Engineering College, Maharashtra, India
[3] Student, Computer Engineering, Pravara Rural Engineering College, Maharashtra, India
[4] Student, Computer Engineering, Pravara Rural Engineering College, Maharashtra, India
[5] Student, Computer Engineering, Pravara Rural Engineering College, Maharashtra, India

ABSTRACT

This system is actually the integration of Employee Monitoring and GPS location Tracking System using Android phone. All the activities of the Employee will be monitored using this system. The system works on 3G communication between the terminal ends. All the activities of an employee on his cell phone and computer, like data usage, all incoming and outgoing calls, web browsing and secured document modification and illegal transfer of company's informative details like blue print, stocks, projects etc. will be set under surveillance. Not only this, the global geographic position of the employee will be traced using GPS. If the employee will do an unapproved activity alerts will be transferred to the Manager using cloud as a medium. Therefore the organization will be set to surveillance that will restrict the unwanted usage of its resources by the employees during working hours. Hence the system will prove beneficial for the progress of the organization and will allow the Manager to check the dedication of his employees towards work.

Keyword: - *GPS, Mobile Computing, Android, Cloud, Employee Monitoring.*

1. INTRODUCTION

Employee Surveillance System is actually a software that will allow the Manager of an organization to track the activities of his employee both on his cell phone and PC. All the activities of the employee such as all incoming and outgoing calls, web browsing, accessing unwanted sites, their location during office hours will be monitored by the manager [1]. This will restrict the unwanted usage of the resources of the organization and will help it to grow faster. In case the employee violates any protocol of the company like unwanted usage of cell phone or PC, making unwanted calls etc. then alert messages will be send to the cell phone of the manager via cloud which acts as a middleware between the employees and the manager of the organization [3].

Android is a mobile operating system currently under Google and is based on Linux kernel. Today there are numerous users of Android smart cell phone. Based on this fact, surveillance on employees using android smart phone is possible as most of the employee uses an android device, may it be cell phone or tablet. This finding has motivated us to propose a new era Employee Surveillance System using Android Smart Phone. It will enable the manager of an organization to improve and cross check the performance of his employees in their respective fields and to check their loyalty and dedication towards their job [2]. It is a complete monitoring system that will use android cell phones and PC of the employees to track their incoming and outgoing call log, web browsing history and their location during working hours [3]. Hence there is no need to maintain the call records or other information manually on record files or on other sources [3]. This monitoring system will provide an alternative to conventional systems and will set all the unwanted activities of the employees in an organization under surveillance.

2. EXISTING SYSTEM

In the existing monitoring system the Manager could only track down the activities of his employees on their cell phones. Location was tracked by fixing tags in different locations [4]. The android terminals were connected using Bluetooth so the range of tracking was limited to few meters only. The Employee tracking system is not so secure when we compare it to the proposed system [6]. A centralized server was used as a medium to store the records of the employees like call logs and web browsing history. Monitoring on the employee's system was ignored. The Manager could not monitor the activities of his employees on their PC, so the organization's resources were not limited to an extent and the employees could easily make unwanted usage of these resources and hamper the organization's progress [3].

2.1 Drawbacks of the Existing System

The Existing System had many drawbacks. Some of them are mentioned as under:

- Centralized Server was used which was not that secure to retain Company's informative details.
- Managers cannot know the employee's current location due to the use of tags and tracking was limited to some meters only.
- There was a possibility of loss in data during the transfer of messages from one mobile end terminal to another mobile end terminal
- The system only monitored employee's mobile phones and the activities on their PC were totally ignored.

3. PROPOSED SYSTEM

In order to eliminate the drawbacks of the existing system and improvise it to a better extent, we have proposed an integrated surveillance system which will monitor the activities of the employee both on their cell phones and PC. All the activities whether it may be data usage, internet surfing, call logs or location of an employee will act as an input domain to the system. This knowledge is important for the system to make critical decisions. Unapproved activities like excessive usage of data on net, call making during working hours, crossing geographic limit of the organization or unauthorized access and modification to a legal organization document will generate an alert message to the manager via cloud. Hence all the activities on the input domain i.e. on PC and android phone of the employee will be set to surveillance. All the data on the input domain will be given to cloud as a storage medium. The cloud act as a medium of generation decision parameter alerts which are to be send to the admin module (Managers Android phone). All data of input domain works as knowledge set of the cloud to generate alerts. All the alerts generated in the form of text will be delivered on the Managers Android phone. Thus the manager can monitor the activities of his employees during working hours. This will help to decrease the usage of resources in the organization and will boost its progress.

3.1 Features of the Proposed System

Some of the features of the Proposed System are discussed as under:

- This Surveillance System is an integration of Employee Monitoring and GPS tracking system..
- This system can be used to monitor Employee activities during working hours both on his PC and Android cell phone.
- It works as an Employee tracking system and helps to track down the GPS position of the employee.
- It can be used as a tool to check the loyalty and behavior of an employee.
- Unwanted activities will send alerts to the Manager via Cloud.
- It allows Manager to track whether an employee is present in an approved area or unapproved area.
- Less cost implementation.
- It provides security in storage of data over cloud.
- Provides security to document access using encryption algorithm.

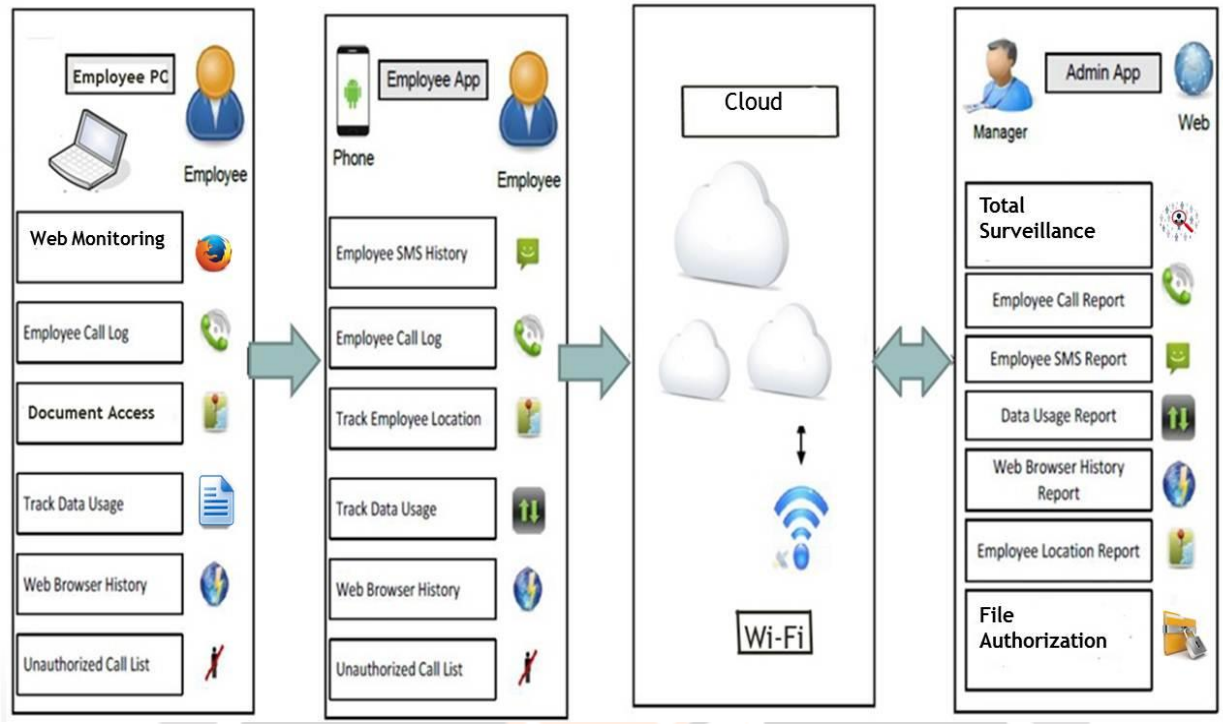

Fig -1: Architecture of Proposed System

4. IMPLEMENTATION

4.1 Hardware and Software for Implementation

Hardware Requirements:

- Processor : Pentium P4 or higher version
- Motherboard : Genuine Intel
- RAM : Min 512MB
- Hard Disk : 20 Gb HDD and higher
- Monitor and Android Smart Phones
- Mouse and Keyboard as Input Devices

Software Requirements:

- Operating system : Linux Operating System and Android
- Technology Used : Android 2.2 or higher version
- IDE : Eclipse
- Emulators : Android Emulator
- Tools used : Android SDK, Android Studio and Visual Studio 10
- Java and C# programming language
- Cloud as a storage medium

5. ALGORITHM

5.1 Encryption Algorithm

Encryption is the process of conversion of a plaintext message into cipher text which can be decrypted back into the original text message. An encryption algorithm along with a key is utilized in the encryption and decryption of data message. There are several types of data encryption methods which form the fundamentals of network security. Encryption schemes are usually based on block or stream ciphers. In this system we are deploying AES encryption standard which can be used by the manager of the organization for providing security to the important documents. This AES standard will help the Manager of the organization to have full control over protected document accessibility. The manger can encipher the important legal documents like project reports and source codes and the key will act as an authentication security pass to gain access to the document.

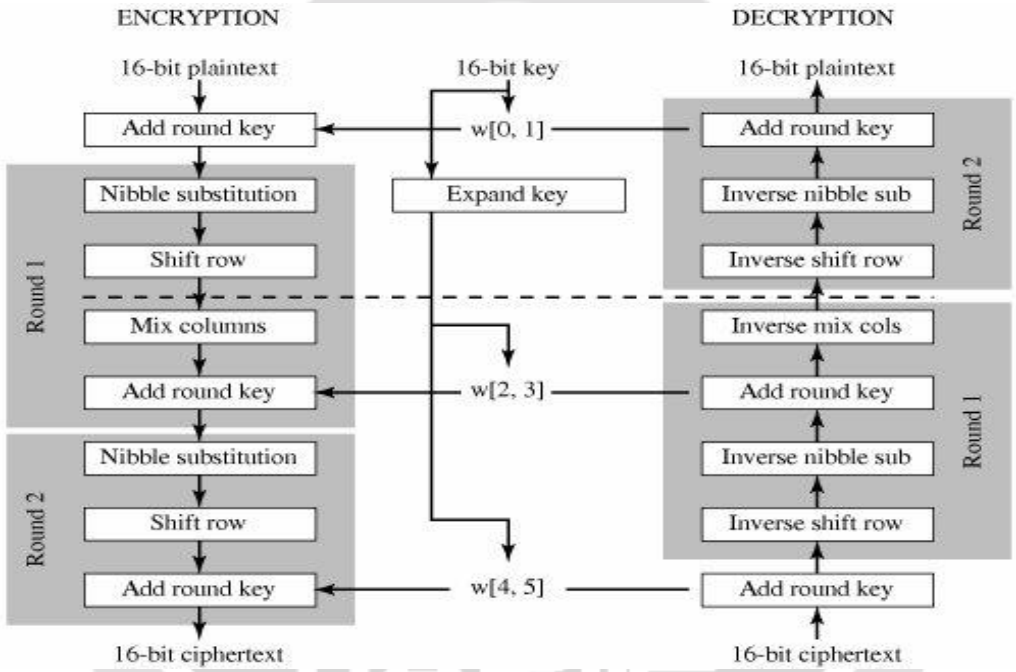

Fig -2: AES Encryption and Decryption Process

5.2 Characteristics of AES (Advanced Encryption Standard) Cipher

- AES or Advanced Encryption Standard is Non-Fiestel Cipher that encodes and decodes a data block.
- The key size can vary depending on the number of rounds.
- Each round contains four steps: Substitution, Row Shift, Column Mixing and Round Key Addition.
- The block is represented as a row of matrix.
- Data block is transformed from one stage to another.
- Block is copied into state array or data block which is modified at each stage of encryption and decryption process.
- After the final stage, state (Data Block) is copied to an output matrix.

6. CONCLUSION

In this paper, we have proposed the new era Employee Surveillance system that is an integration of Employee Monitoring and Employee Tracking System. Using this system it is possible for the Manager to track the activities of his employees both on their Android cell phones and PC. Activities like unwanted site accessing, limitless data usage, unwanted calls, web browsing and the employee location will be set under surveillance. This Employee Surveillance system can be used to track down the activities of an organization by its Head especially in an I.T. organization where the outsourcing of protected information about the projects and other sophisticated details needs to be traced and tackle. This System will prove as a key to restrict the unwanted usage of an organization's resources and will help it to grow and progress.

7. REFERENCES

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