ISSN XXXX XXXX © 2018 IJESC

Research Article Volume 8 Issue No.4

Advanced Employee Monitoring and Work Allocation System

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Abstract:
This work presents the design and model implementation of monitoring employees in an organization and allocating work based on global positioning system (GPS). This system allows the administrators or the managers to efficiently manage their employees without much hustle by overcoming the disadvantages and complexity in the existing employee management system. The software application which is based on Android guarantees the user great flexibility with extensive usage space for admin, manager and employees ensuring high end security. A cloud service provider (CSP) helps details of the employees to be stored in a database system for efficient retrieval and modification of data. This system offers a cost-effective and efficient solution, because the costs of a dedicated public IP address and a high-end computer are excluded, which are present mostly in other solutions.

I. INTRODUCTION

Employee tracking system adopts a smart phone network. Based on the previous experiences such as inconsistency in the data and loss of data, 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 employees 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 user's information using Global positioning system(GPS). In additional we are use one new module such as know the employee behavioral 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 andthe 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 behavioral of the employee by using K-means clustering algorithm which can help for improving the organizational growth. This proposed application is quite user-friendly as it contributes in giving accurate digits in managing employees of the company by saving time, reducing manager efforts; avoids the unnecessary use of company phones which provides to the Employee for their official work during working hours. The proposed android application connects the centralized server with employee phones. The main idea of our paper is to provide an aid to Managers to navigate their

II. RELATEDWORKS

Several techniques and methods have been carried out effectively to monitor employee attendance. Lawson et al. proposed a cost-effective computer based embedded attendance management system by which authority electrically monitors the attendance for verification using an improvised electronic card. These cards contain necessary information of an individual. These are inserted in an electronic machine which will record the time and other information to a server system. Password based authentication and verification of attendance monitoring system of any individuals has also been carried out in the literature. A system that applies user id and password of a person for authentication was designed and implemented by Cheng et al. However, an issue with these electronic cards or password based system allows for imposture since cards or passwords can be shared or someone can ask another person to insert his/her card or password. This problem can be addressed by using biometric recognition system which includes finger print or iris recognition. A system was proposed and implemented by authors fingerprints to identify and calculate the attendance and generate the reports after a fixed time duration. Individuals simply put their fingerprints on the fingerprint reader which scans the finger print and verifies that person. M. Smaili et al solved the problem by proposing a wireless attendance management system where iris of an individual is used for authentication. It is also like fingerprint where no two people can have the same eyes. A scanner will scan the eyes and automatically log the person in. Unlike fingerprint, iris is more preserved from the external environment. But both the fingerprint and iris recognition based approach needs some extra devices or scanner which can be connected to the server computation system. In our work, we addressed the problem utilizing smartphones internet connectivity for monitoring the presence or attendance of an individual. Smartphone based monitoring system reduces the surplus cost of additional scanning device because now a day almost each employee possesses a smartphone of his own. An area is fixed for every employee when an employee enters or exits that area, that time

stamp is saved and the time duration of any particular employee residing within its area is calculated by the system.

III. SYSTEMARCHITECTURE

The project proposed contains an android application which enables the employers to monitor their employees and allocate appropriate work to them through the app. Each employee is added to the system by admin. Admin uses the details of the employees while creating new employee in the application. The admin can also review the employees added to the system.

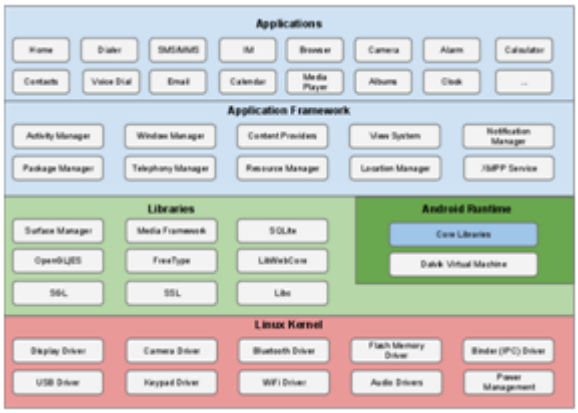

Figure.1. Android Architecture

The location of the employee is added while the creation process which helps to allocate the best jobto the employee based on their location. This helps to improve the efficiency of the work allocation in the organization as the employees are allotted with the jobs near to them. This also helps to improve the work efficiency of the employees. The works are allocated to the employees by manager through the android application. The Manager allocates the works based on the department and location of the employee. This helps to improve the work efficiency of the organization. The Manager have the entire list of the employees in the organization and the details about them. The details of the employees contains their department, location and their contacting information . the manager allocate the job to the employee with details of the job such as the location of the organization to be visited and their working hours. The job description also specifies which official have to be visited in the organization. If the employee is instructed to meet a client, then the entire details about the meeting is given in the job description. The employee can login to the application using the user id and password provided by the admin. The employee can view the entire jobs allocated to him. The job description contains all the necessary information needed to complete the job. The job description also contains the exact location of the organization to be visited. After completing each job the employee updates the status of the job. While updating the status the location and a selfie of the employee is send to the manager. This helps to improve the assurance of the job. That is the manager has more assurance that the job is done, which lacks in the marketing job sector. Interfaces (GUIs) for client's operations and functions. The Structural design involving in the use of design patterns and frameworks is included in the software system development. The frontend applications which is web and mobile applications which provide graphical interfaces for the user control and monitoring of equipment and sensors. The web application developed is open-source using the HTML5 technology – HTML, PHP, JavaScript, CSS and MySQL. This application is launched through the web browsers of smart gadgets like personal computers, tablets, PDAs, smart phones etc. The mobile application is a simplest version of the web application using the cross platform development framework, PHP Cordova (or Phonegap). So that in have features like flexibility, intuitiveness, memory efficiency and uncluttered operation were considered for greater user experience. The embedded software program is written in C/C++.

IV. IMPLEMENTATION

Prototyping is the important part of the app which decides how the app look like after implementation. Photoshop CS6 has been used for prototyping of the Android App UI design. Material design has been used with the latest ripple effect and flat UI with fragments in the app. The fragments gives more control of the element instead of simple activity alone. Maximum backwards compatibility of the app been set to Ice cream sandwich (Android 4.0.3) and maximum up to Marshmallow (Android 6.0) and recently has been updated to Android N preview version. Volley library has been used for transferring the data from the server and to the server asynchronously so that the app does not hang up working network task in the main thread. The singleton class keeps track of all the requests in the form of queue. The JSON data from each call from the server is first parsed to store in the Saved Instances which is kind of local cache for the data to increase the performance of the app with long UI list. The adapter class in the app does the exact work as the controller does. It transfers the request from the fragment or activity to the volley and then updates back the fragment using asynchronous calls from the model. All the images in the app are loaded asynchronously using Picasso library. The library uses local caching to persist the large image sets in the app itself.

V. RESULTS

This system allows the administrators or the managers to efficiently manage their employees without much hustle by overcoming the disadvantages and complexity in the existing employee management system. This proposed system has the five requirements respectively. For Easy to implement and add no. of functions, ability to manage many employees efficiently, tracking of employee easily for checking either who is present approved area or unapproved area. 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.

VI. CONCLUSION

This application enables the managers to allocate the jobs to the employees and monitor them. This monitoring system is a revolutionary mobile application which uses Android OS for monitoring the work allocated to the employees. There is no need of manual entering of the daily activity details of each employee onto the database. It completely abolishes the traditional way of allocating the works. This will considerably reduce the paperwork and save ones precious time. This application makes good use of the recent mobile development

technologies and thereby increases the overall performance of the employees, also has a substantial business value because it reduces hardware and maintenance cost and increases customer's satisfaction.

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