

# Employee Tracking using Human Foot Printing System

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## ABSTRACT

The Global Positioning System (GPS) is being adopted by private and public enterprise to track and monitor humans for location based services (LBS). This paper focuses on developing an application for tracking employee's going for various work. Location-based services or LBS is a term that is derived from the telematics and telecom world. This system is GPS enabled android mobile phone whose location is tracked, GPS has the ability to calculate the position, time, and velocity of any GPS receiver, the longitude and latitude of a subject 24/7/365.

**Keywords:** REST(Representational State Transformation), URIs(Uniform Resource Identifier), SOA(Service Oriented Architecture), GPS(Global Positioning System), UI(User interface).

## I. INTRODUCTION

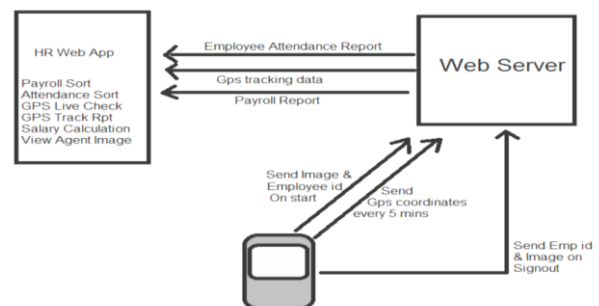
Now-a-days available applications based on human tracking system are just for self purpose only. Because of which such self purpose tracking systems cannot be used at large scale. So along with this, there should be some system which can monitor such tracking activity. Although there are some application which gives location status of particular user, but such system cannot provide the overall previous location status. In order to keep track of the attendance as well as payroll of the field work people, our system will play a major role.[1]

Internet is providing the platform for accessing different kinds of services in a distributed and heterogeneous environment. Software components are available on Internet in the form of Web Services. Service Oriented Architecture (SOA) possesses various characteristics by executing Web Services using Simple Object Access Protocol (SOAP). SOAP has certain limitations such as tightly coupled invocation, performance in terms of response data, non-uniform interface and no hyperlink support. These limitations can be resolved by implementing principles of Representational State Transformation (REST). REST is an architectural style implemented by resources known as RESTful Web Services. At present, light-weight RESTful services are dominating the

development of services due to simplicity of RESTful architecture. Service access and invocation is simple in RESTful framework as it uses Uniform Resource Identifier (URIs) and Hyperlinks. [2]

## II. WORKING OF HUMAN FOOTPRINTING SYSTEM

In this paper, we explore the idea of RESTful Service Mash up by integrating individual Web Services which can satisfy end user's requirements. For this work, we propose a recursive algorithm. The implementation work is on Android2.2 (froyo), API level 8 and above. It is supported on most of Android based mobile devices. Our system is designed for tracking and per on site marketing personnel using CaaS concepts. [3]



**Figure.1:** Overall description of the System

The system uses CaaS based web service for this purpose hosted on a real time server to perform all the

real time processing with consistency. The android device allows marketing agent to mark his attendance and then as soon as the app is started to it also runs to continuously transmit the agent GPS coordinates. The system receives these coordinates and allows the HR representative to check the coordinates of the user through a web application. The system also integrates person attendance tracking along with basic payroll search sort facility to the HR representative. The system also instructs to take a self-image and transfer it to the server while day sign in and sign-out. The system stores this data along with employee daily gps tracking coordinates and shows it to the HR as and when desired using the HR login. Our system allows for a robust marketing personnel tracking system using RESTful web service using android location tracking services. The HR is provided with reports on basic employee payroll report along with attendance as well as gps tracking reports as desired.

### III. DESCRIPTION OF MODULES

This system is having 8 Modules:

1. Android Login
2. GPS Data
3. Sign-out
4. Data Retrieval
5. Payroll Report
6. Salary Calculation
7. GPS Tracking
8. GPS Tracking Report

Description:

#### 1. Android Login:

System transmits data using employee id entered by gent/personnel and transmits it along with image of personnel

#### 2. GPS Data:

- The android device constantly transmits gps coordinates after particular intervals to the server.

#### 3. Sign-out:

- The android device sends employee id along image during sign-out.

#### 4. Data Retrieval:

- The web server retrieves gps as well as employee id along with date time and stores it for further reporting.

#### 5. Payroll Report:

- The web server sends payroll report data to HR web application for custom sorting.

#### 6. Salary Calculation:

- The HR web application now allows the HR to calculate salaries of all employees by deducting leave pays on a single click.

#### 7. GPS Tracking:

- HR may view the current position of its employee anytime desired.

#### 8. GPS Tracking Report:

- HR may view the GPS reporting data with lat long and timestamp.

### IV. DESIGN AND IMPLEMENTATION

#### Design:

The design of the system can be well understood with the help of E-R diagram and Sequence diagram as shown below.

#### E-R Diagram:

- The E-R diagram provides a brief description of the various services that each Employee and HR or Admin posses.
- It describes the modules that are present in the Web Services.
- Also the parameters that are to be used by both HR and Employee to access these services.

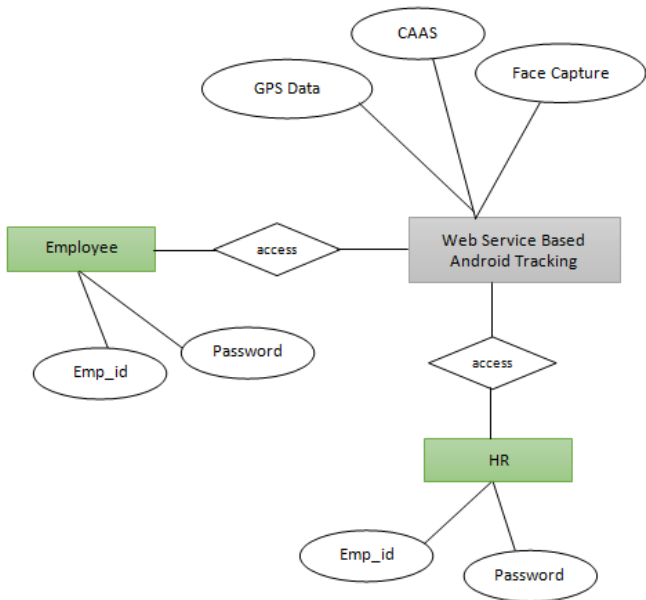


Figure.2: E-R Diagram

**Sequence Diagram:**

- A sequence diagram is an interaction diagram that shows how objects operate with one another and in what order.
- The HR interaction sequence diagram which shows various events taking place between the HR and the Main Page as shown in Figure.3(a).
- The Employee interaction sequence diagram which shows various events taking place between the Employee and the Main Page as shown in Figure.3(b).

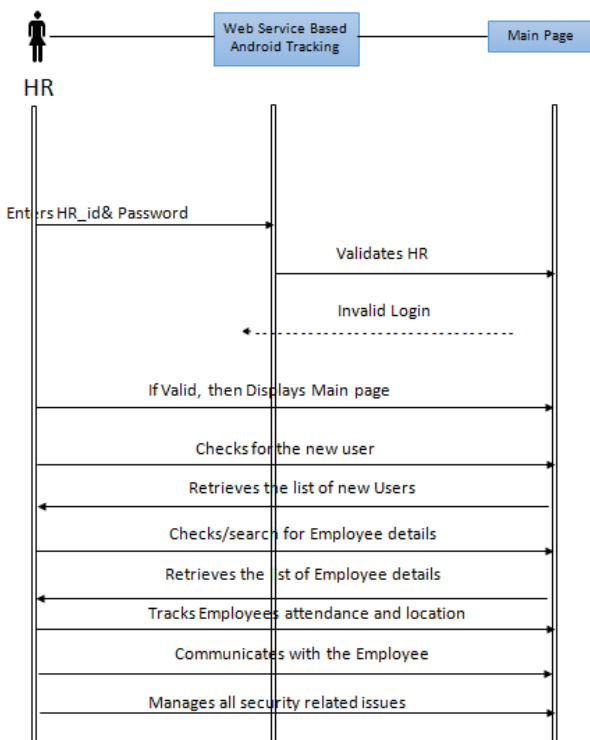


Figure.3(a): HR interaction with System

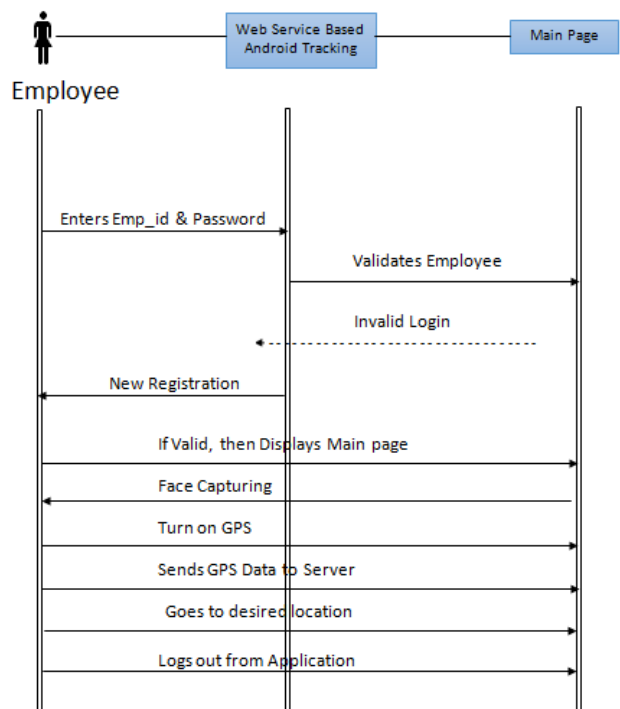


Figure.3(b): Employee interaction with System

**Implementation:**

The implementation consists of the UI(User interface) at both the HR side and Employee side. The UI at HR consists of the Web Page coded in ASP.NET Technology whereas the Employee’s front end consists of an application coded in Android Technology. We used Visual Studio and ADT(Android Development Tool) for Design and coding of project. Created and maintained all databases into SQL Server 2008, in that we created tables, written query to store data or record of project.[4]

**HR User Interface:**

The HR User interface consists of two sections i.e. the Admin Login and the HR Login. Figure 4(a) shows the Login Page of the HR User Interface.

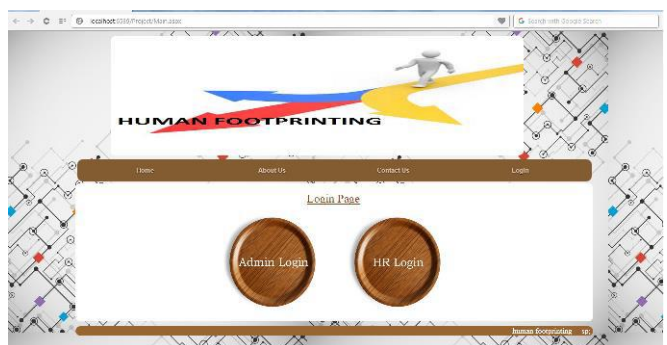


Figure.4(a): Login Page of Administrator User Interface

The Admin and HR gets access to the system by providing appropriate credentials i.e. user ID and Password.

Admin posses various rights such as Adding employee, View location, Check Salary, etc. This the person responsible for maintaining records of the employee's. It is as shown in the Figure.4(b).

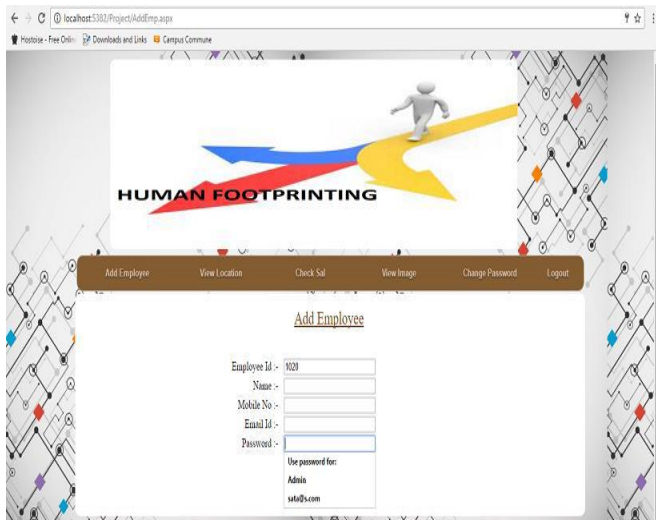
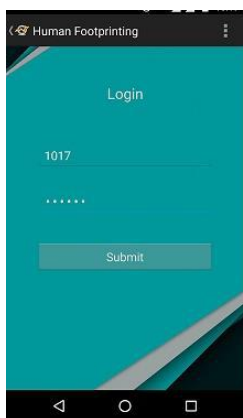


Figure.4(b): Admin activities Page

Whereas HR can only view the status or location of the employee's but don't have other rights as like Admin.

#### Employee User Interface:

- The UI consists of the credentials like the Login\_ID & Password of the Employee. Once the appropriate credentials are entered the Employee gets logged in to the system as shown in Figure 4(c).
- Employee is then asked to capture the image of the place where he is present as shown in Figure 4(d).



4(c):Login Page



4(d):Image Capture

Figure.4: Employee UI(User Interface)

- Once the image is captured the user clicks the next button and the image gets stored in the database.
- Along with image the location of the Employee in Latitude and Longitude is sent to the database after every 2minutes and the complete movement of the employee is tracked until he logs out as shown in Figure.4(e).

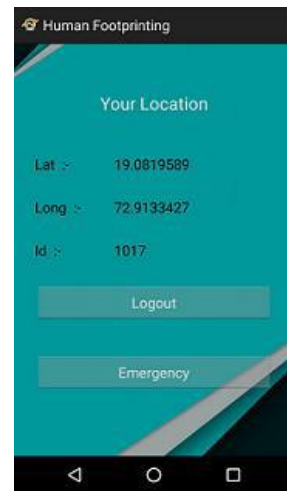


Figure.4(e): Location Coordinates

## V. CONCLUSION

The technology of the Global Positioning System is allowing for huge changes in society. The applications using GPS are constantly growing. The cost of the receivers is dropping while at the same time the accuracy of the system is improving. This affects everyone with things such as faster Internet speed and safer plane landings.

## VI. REFERENCES

- [https://www.ijirset.com/upload/march/15\\_Mobile%20Tracking.pdf](https://www.ijirset.com/upload/march/15_Mobile%20Tracking.pdf) [Radhika Kinage]
- <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?tp=&arnumber=6762971&queryText%3Dandroid+web+service> [Jonathan Lee Dept. of Computer Sci.& Inf. Eng., Nat. Taiwan Univ., Taipei, Taiwan]
- <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?tp=&arnumber=6726550&queryText%3Dandroid+web+service> [Mohammed Husain Bohara DA-IICT, Gandhinagar, India]
- <http://www.asp.net/>: This is the official Microsoft ASP.NET web site. It has a lot of: tutorials, training videos, and sample projects.