1. INTRODUCTION

The **Employee Tracking System** is the systematic and the additional method of the employee management for the use of the organization. This is very helpful and highly useful. The system tracks the job of the staff and worker who are doing the job separately and in team for the development of the organization. The word the Employee Tracking have now taken over to the Personnel Management by the term mentions the management of the organizations people. Normally the Human Resource Development refers to the recruiting of candidates, to enhance their skills, using, managing and providing the proper wages according to their job and the need.

1.1 Employee Tracking System

The objective and scope of my Project **'EMPLOYEE TRACKING SYSTEM'** is to record the details various activities of employee in industry. It monitor the all activities of employee like if company recruit a new employee their entry is inserted in the employee database, when an employee passes from door his/her information is get retrieved in database and log of entire day will be stored in database .when employee passes using RFID tags through door using RFID reader he/she must be authenticated by using capturing image of employee. If any employee is doing proxy of any one it can be easily identified by administrator by using capturing image of employee. It also give authentication for administrator for system. In this project we also implement a new module which help for detecting idle time of employee

Here in this **Employee Tracking System Project** the employees when enter in to an organization he starts working on a project or starts doing his task then he gives his detailed time to time work he has done on that particular day to the administrator who in turn prepare the reports of a particular employee and then submits to the project manager, then he analyses the capability of an employee and he will finally prepare the final reports which include the aspects of an employee are as follows:

- The reports will give the significant amount of time and effort invested by the employees time to time, by helping the management to know about their employee's capability.
- The employee can immediately know his capacity and the working hours weekly once or when the task allotted to him is finished.
- Achievement/target report employee wise.

- Also manage automatic attendance of employee including his/her entry time and exit time

Finally I conclude that this project plays an important role in tracking the timings of the employee and how much time he is working and the entry time and exit time .When a employee cross the gate number of times. And maintain like a small database about the timings of the employee.

2. SYSTEM REQUIREMENTS AND SPECIFICATIONS

2.1 HARDWARE REQUIREMENTS

I.) **RFID Tag:**

There are three types of RFID tags; passive, active and semi passive.The passive RFID tag requires no internal power source as it gains power from the signal transmitted by the reader. The active and semi passive tag requires a power source. Commonly the power source is a small battery. These tags communicate using backscattering or load modulation technique.

Figure: 2.1(RFID Tag)

Reference (i)

II.) **RFID Reader:**

An RFID reader that reads tags operating at different frequencies or using different Methods of communication between RFID tag and reader.

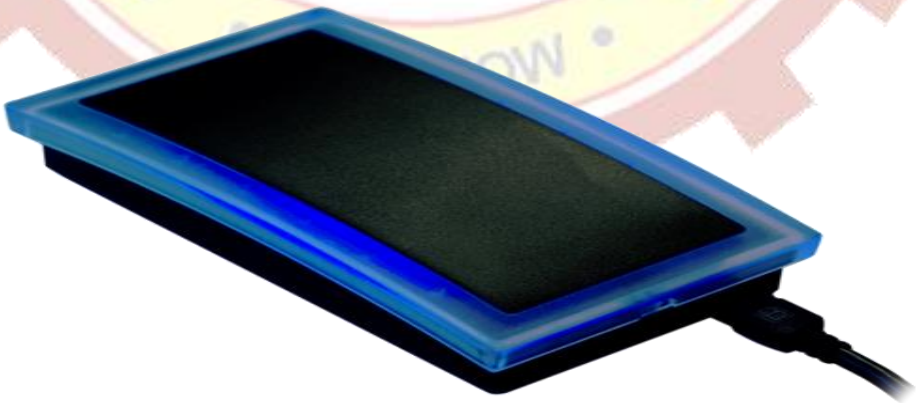

Figure: 2.2(RFID Reader)

Reference (ii)

2.2 SOFTWARE SPECIFICATION

I.) **JAVA:**

JAVA is a set of several computer software products and specifications from Sun Microsystems (which has since merged with Oracle Corporation), that together provide a system for developing application software and deploying it in a cross platform computing environment. Java is used in a wide variety of computing platforms from embedded devices and mobile phones on the low end, to enterprise servers and supercomputers on the high end. Writing in the Java programming language is the primary way to produce code that will be deployed as java byte code.

II.) **MySQL Database:**

MySQL is a popular choice of database for use in web applications, and is a central component of the widely used. MySQL is an open-source relational database management system (RDBMS),it was the world's second most widely used RDBMS, and the most widely used open-source client–server model RDBMS.It is named after Michael Widenius' (who is a co-founder of MySQL) daughter, My, while "SQL" stands as the abbreviation for Structured Query Language. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now owned by Oracle Corporation.

2.3 PROJECT CATEGORY

The category of this project is WEB APPLICATION.

2.4 TOOLS AND LANGUAGE USED

Tools	Net Beans 8.0.1
Services built using	Java Server Faces
Front End	XHTML
Database Used	MY SQL

3. ABOUT EMPLOYEE TRACKING SYSTEM

The main focus of this Employee Tracking System is to track every possible activities related to the functionalities that an organization performs like tracking employee performance, employee location, and time consumed.

In today's emerging scenario, Employee Tracking Software is coming out to be the mandatory for all organizations depending on working strategies. Tracking System leads to the increment in performance and most important aspect is that in as well as out time are recorded on daily basis which minimized the chances of any mistake related to the attendance of an employee.

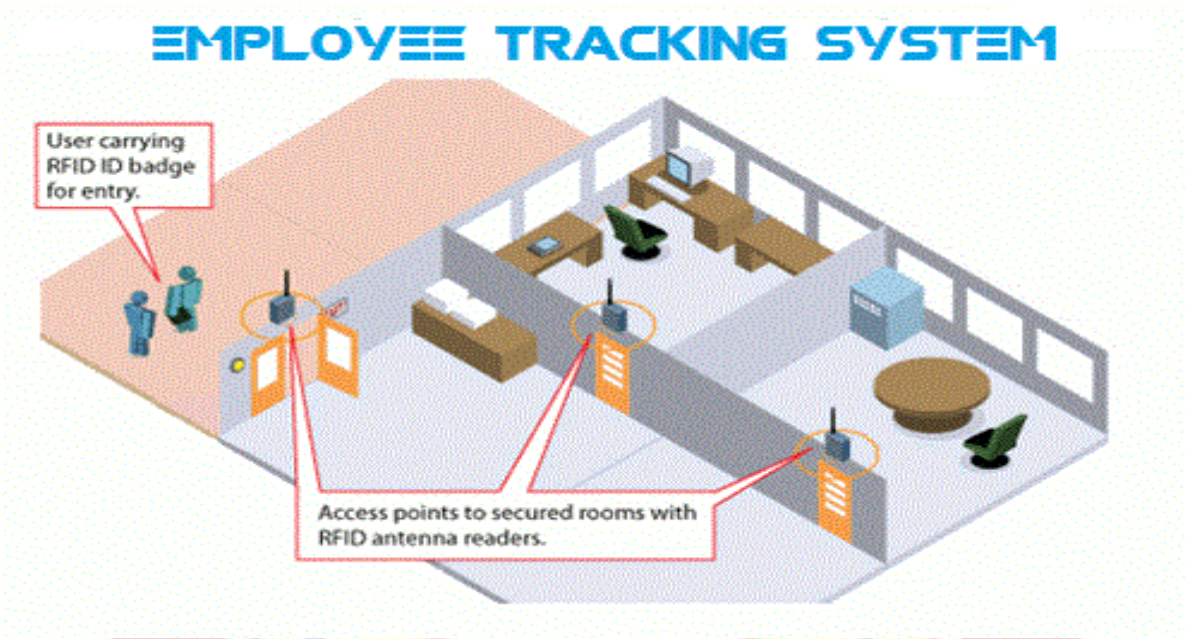

Figure: 3.1(Employee Tracking System)

Reference (iii)

Employee Tracking System is a Web Application can be accessed anytime and anywhere there is Internet access. It is the central place for managing all employee every day.

3.1 How RFID module track employee?

In general terms, Radio Frequency Identification systems consist of an RFID tag (typically many tags) and an interrogator or reader. The interrogator emits a field of electromagnetic waves from an antenna, which are absorbed by the tag. The absorbed energy is used to power the tag's microchip and a signal that includes the tag identification number is sent back to the interrogator.

In this project employee tracking system when an employee passes through reader region then reader read the unique information encoded in tag associated with employee identity card and at the another end we have created a RFID reader module which always ready for the reading the information transmitted from the all readers.

After reading the information which is transmitted by reader the RFID module start computing. First it generate all employee related information according to the information comes from tag of an employee. After containing all employee related information update the database. We also detect employee attendance including its entry time and exit time from the same module. When the employee passed the reader region then we check in our program that is it the first time in this day or not. When this flag return true then we make entry in the employee attendance table and update entry time of an employee and same as we also calculate the exit time of employee.

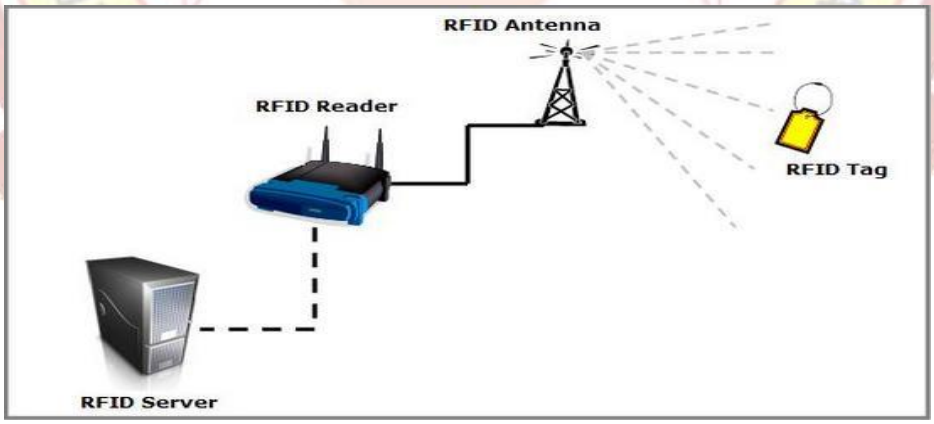

Figure: 3.2(How employee tracking system track employee)

Reference (iv)

3.2 How do admin find employee last location?

The employee tracking system consist of several module each have own functionality. We have design a module which is GUI based web application names Admin Console. Where Administrator goes with his own login credential and able to access the feature of Employee Tracking System like register new employee or manage employee. Here administrator can assigned project related or other task to any employee. After assigning the task the particular employee informed via email send through Employee Tracking System.

The administrator can also track employee location through the same GUI. Here we have make two option for tracking employee. They can track employee by his/her unique Employee Id or Employee name.

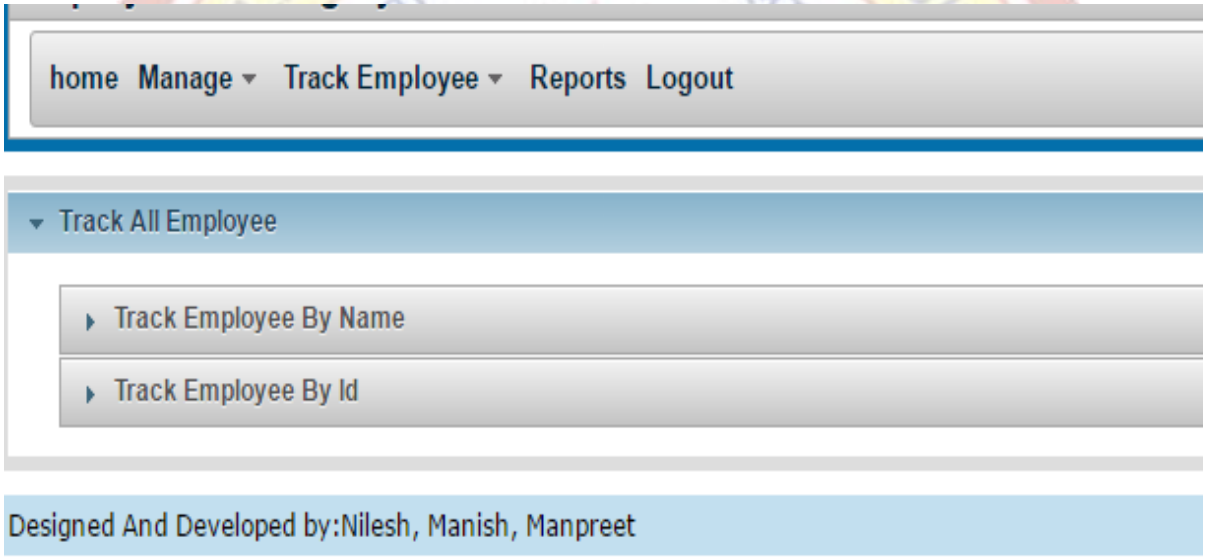

Figure: 3.3(How Administrator track employee)

After submitting the details (Employee Name or Id) the employee latest information comes on the data table.

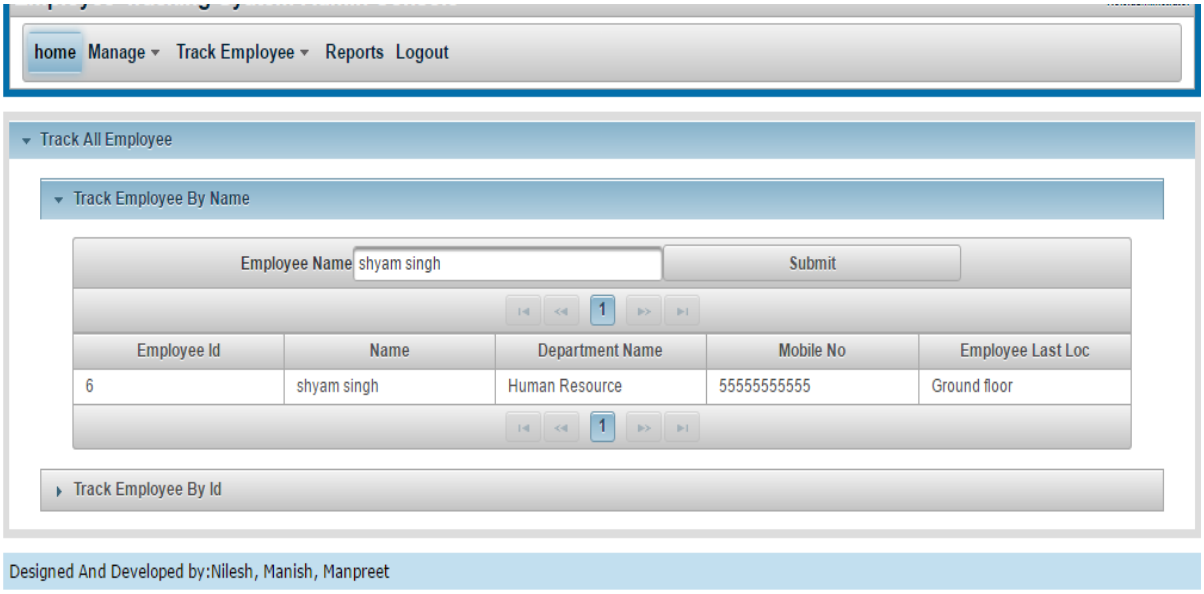

Figure: 3.4(Track employee by name)

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4. SCOPE OF THE SYSTEM

The scope of my Project Employee Tracking System is to record the details various activities of employee. It will simplifies the task and reduce the paper work. During implementation every employee will be given appropriate training to suit their specific needs. Training will be provided on a timely basis, and you will be trained as the new is Employee Tracking System rolled out to your area of responsibility.

The all modules of this project having different behaviour as per industry requirement. The admin module is designed for administrative use like create or manage employee, assign task to particular employee or monitor assigned task status of employee. The RFID module designed for tracking employee location and manage its attendance. And the employee panel is specially designed for employee who is doing his job in various department.

5. Acronyms, Abbreviations, and Definitions

5.1 JSF- Java Server Faces:

Java Server Faces (JSF) is a Java-based web application framework intended to simplify development integration of web-based user interfaces. Java Server Faces is a standardized display technology which was formalized in a specification through the Java Community Process.

JSF is based on a component-driven UI design-model, Java Server Faces uses XML files called view templates or Facelets views. The Faces Servlet processes requests, loads the appropriate view template, builds a component tree, processes events, and renders the response (typically in the HTML language) to the client. The state of UI components and other objects of scope interest is saved at the end of each request in a process called state saving and restored upon next creation of that view. Either the client or the server side can save objects and states.

5.2 JSF MANAGED BEAN:

Managed Bean is a regular Java Bean class registered with JSF. In other words, Managed Beans is a java bean managed by JSF framework. The managed bean contains the getter and setter methods, business logic or even a backing bean (a bean contains all the HTML form value). Managed beans works as Model for UI component.

- Managed beans works as Model for UI component.
- Managed Bean can be accessed from JSF page.
- In JSF 1.2,a managed bean had to register it in JSF configuration file such as faces-config.xml.
- From JSF 2.0 onwards, Managed beans can be easily registered using annotations. This approach keeps beans and there registration at one place and it becomes easier to manage.

5.3 XHTML:

Extensible Hypertext Markup Language (XHTML) is part of the family of XML markup languages. It mirrors or extends versions of the widely used Hypertext Markup Language (HTML), the language in which Web pages are formulated.

While HTML, prior to HTML5, was defined as an application of Standard Generalized Markup Language (SGML), a flexible markup language framework, XHTML is an application of XML, a more restrictive subset of SGML. XHTML documents are well-formed and may therefore be parsed using standard XML parsers, unlike HTML, which requires a lenient HTML-specific parser.

5.4 My SQL – My Structured Query Language:

A relational database management system (RDBMS) that runs as a server providing multi-user access to number of databases. It is consider the world's most popular open sources database. Integrated component of the web browser, allowing the development of enhanced user interfaces and dynamic web sites. JavaScript is a dialect of the ECMAScript standard and is characterized as dynamic, weakly typed, prototype-based language with first-class functions. JavaScript was influenced by many languages and was designed to look like Java, but to be easier for the non-programmers to work with.

5.5 JavaMail API:

The JavaMail API provides a platform-independent and protocol-independent framework to build mail and messaging applications. The JavaMail API is available as an optional package for use with the Java SE platform and is also included in the Java EE platform.

JavaMail provides elements that are used to construct an interface to a messaging system, including system components and interfaces. While this specification does not define any specific implementation, JavaMail does include several classes that implement RFC822 and MIME Internet messaging standards. These classes are delivered as part of the JavaMail class package.

Following are some of the protocols supported in JavaMail API:

SMTP: Acronym for Simple Mail Transfer Protocol. It provides a mechanism to deliver email.

POP: Acronym for Post Office Protocol. POP is the mechanism most people on the Internet use to get their mail. It defines support for a single mailbox for each user. RFC 1939 defines this protocol.

IMAP: Acronym for Internet Message Access Protocol. It is an advanced protocol for receiving messages. It provides support for multiple mailbox for each user, in addition to, mailbox can be shared by multiple users. It is defined in RFC 2060.

MIME: Acronym for Multipurpose Internet Mail Extensions. . It is not a mail transfer protocol. Instead, it defines the content of what is transferred: the format of the messages, attachments, and so on. There are many different documents that take effect here: RFC 822, RFC 2045, RFC 2046, and RFC 2047. As a user of the JavaMail API, you usually don't need to worry about these formats. However, these formats do exist and are used by your programs.

6. How the system works

In this project Employee Tracking System have three module and each have own behaviour and mode of operation. The first module which is RFID module run in backend and work as a location updater of employee and also for managing attendance. And next two module is a GUI base which run as front end.

RFID Module:

The RFID module consist of a simple java class which is use for the communication between RFID device and our project. It is used for catch the information thrown by the RFID device after catching the employee related information it must be update the update employee location to the database table. It is also compute the employee attendance including his/her entry time and exit time.

Admin console:

It is GUI based interface where administrator/supervisor login with his/her credential and able to create or manage employee. When an employee registered with us then we have generate employee user id and password by which they can login and view or manage own dashboard. They can assign a task to a particular employee and also able to view status of assigned task. When an administrator/supervisor assign task to an employee then the task related information send to employee registered email id. And employee can login to employee console and view and manage his/her profile.

7. System logic diagrams

7.1 Class Diagram

The class diagram is a static diagram. It represents the static view of an application. Class diagram is not only used for visualizing, describing and documenting different aspects of a system but also for constructing executable code of the software application.

The class diagram describes the attributes and operations of a class and also the constraints imposed on the system.

The class diagram shows a collection of classes, interfaces, associations, collaborations and constraints. It is also known as a structural diagram.

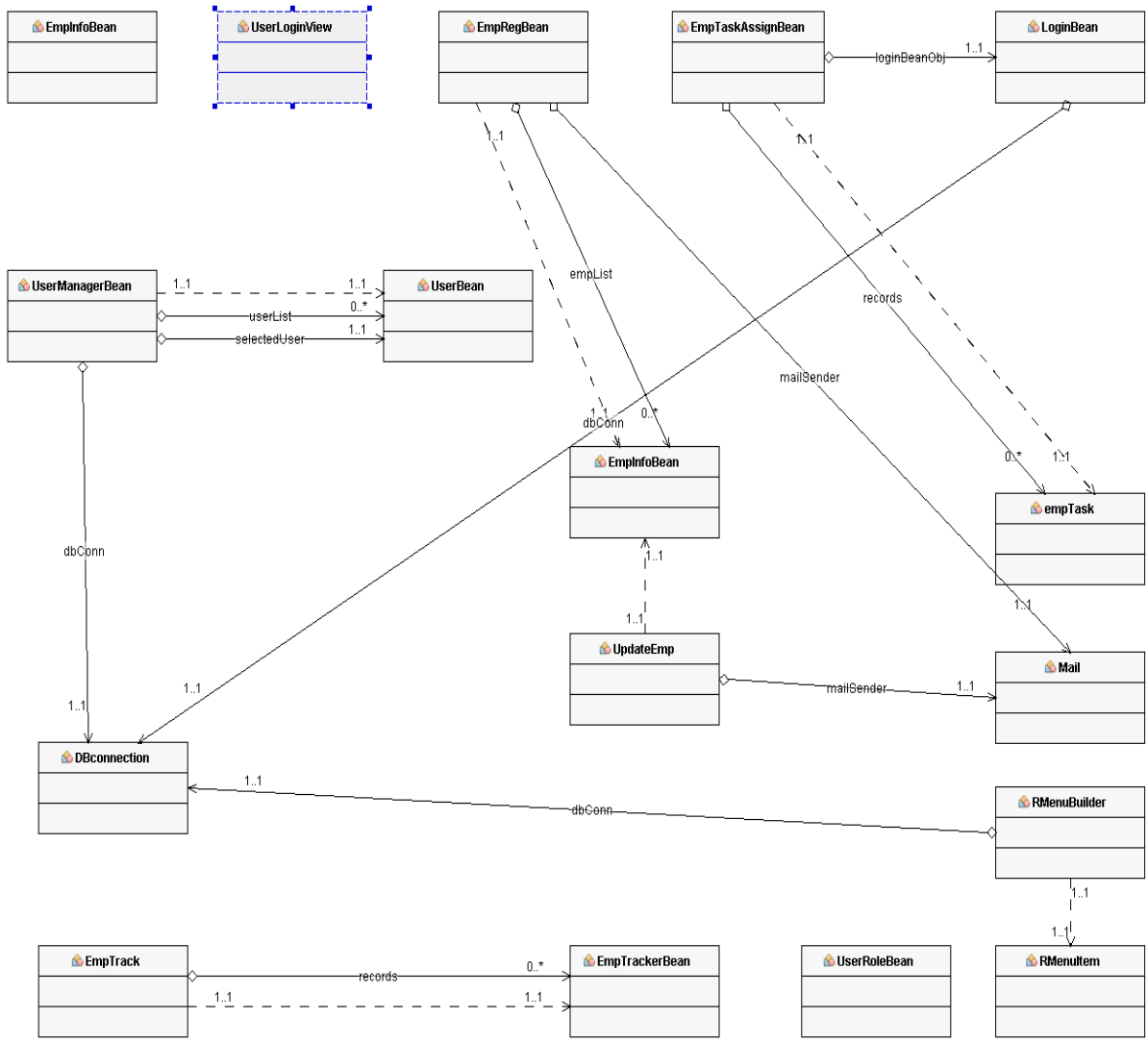


Figure: 7.1(class diagram 1 of employee tracking system)

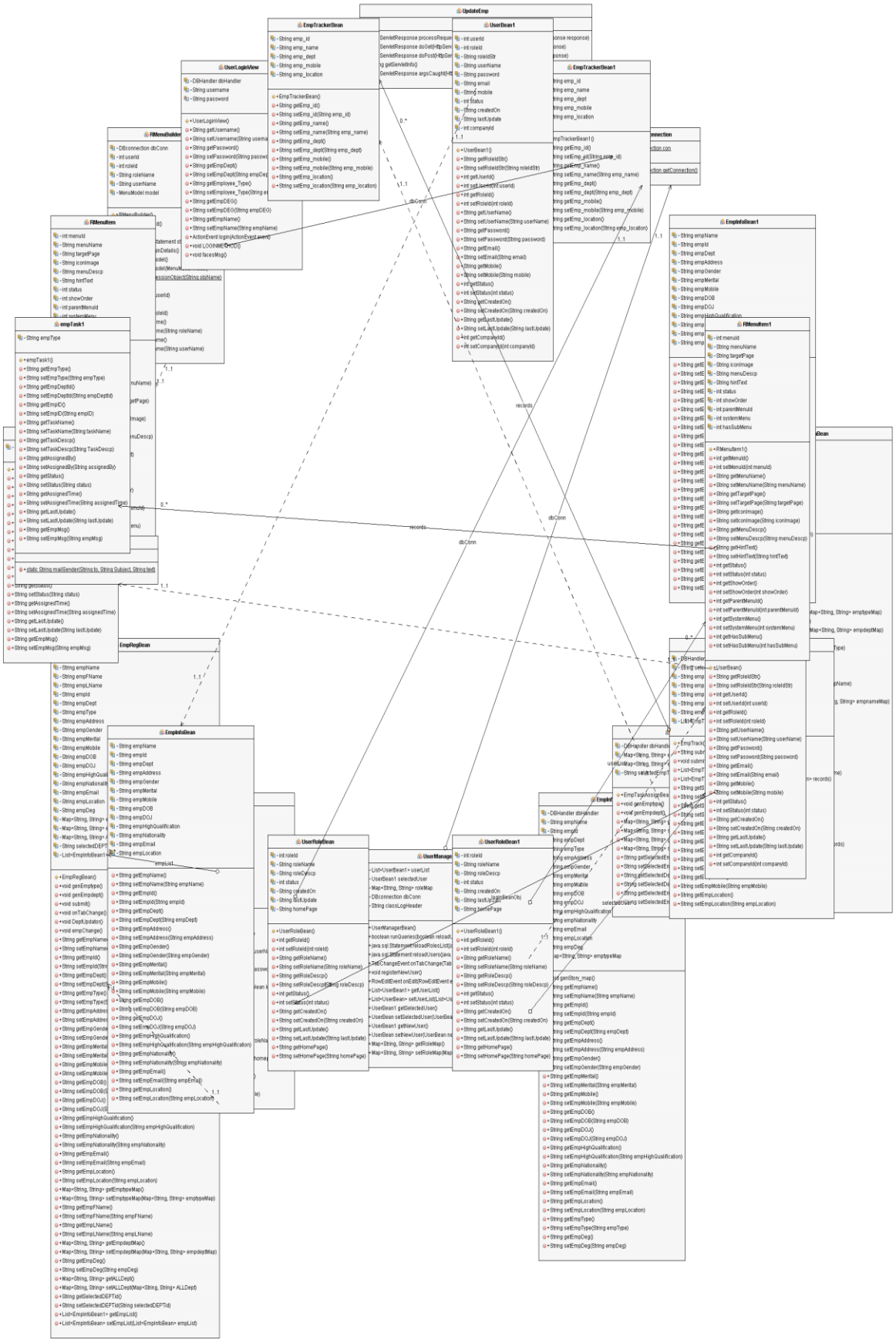


Figure: 7.2(class diagram 2 of employee tracking system)

7.2 Use case Diagram

A use case diagram at its simplest is a representation of a user's interaction with the system and depicting the specifications of a use case. A use case diagram can portray the different types of users of a system and the various ways that they interact with the system. This type of diagram is typically used in conjunction with the textual use case and will often be accompanied by other type of diagrams as well.

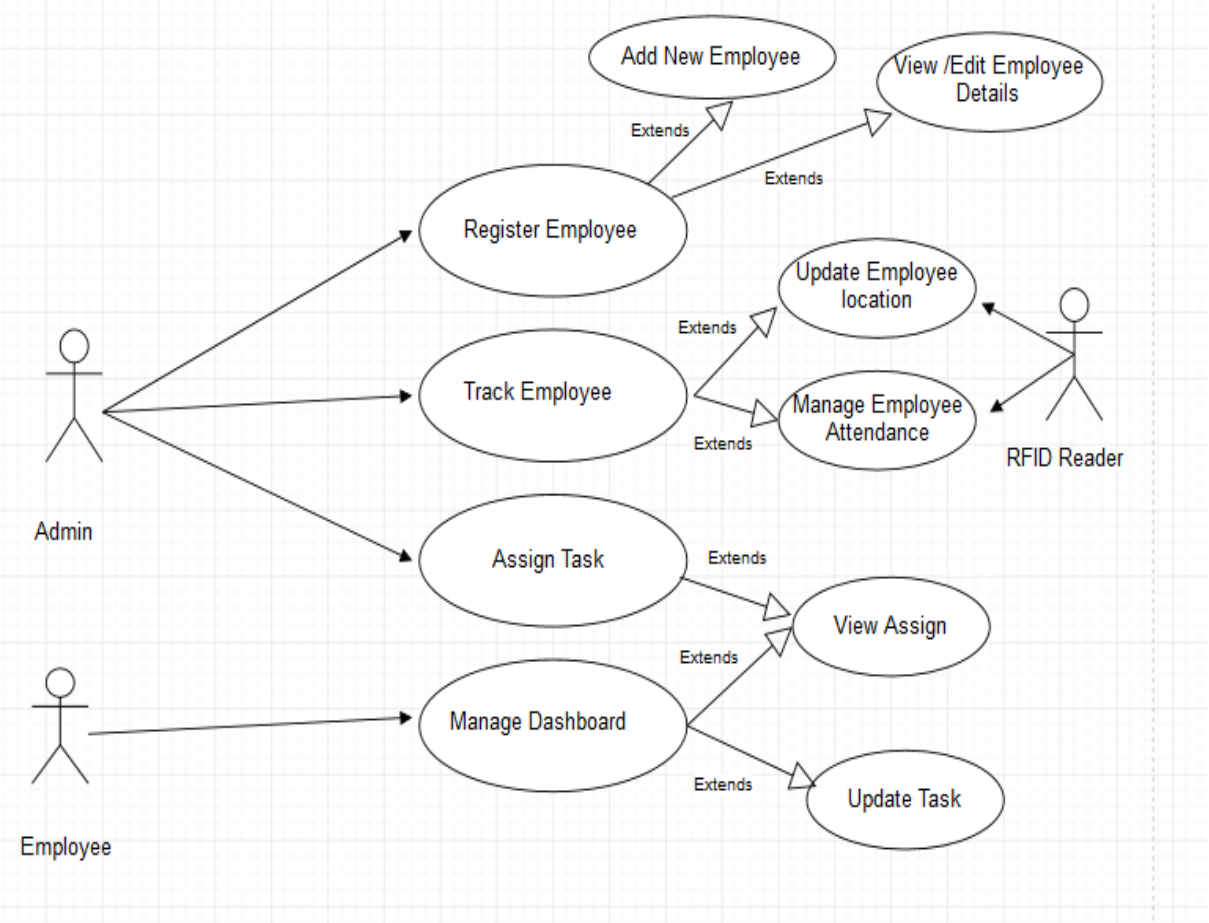


Figure: 7.3(Use Case diagram of employee tracking system)

Use Case Diagram Description

The above use case diagram show the dynamic aspect of our project Employee Tracking System. The description is of these are as follows.

- **Actor**

  Admin, Employee and RFID Reader are the actor in our project as shown in above use case diagram because it can directly interact with the system.

- **Use Cases**

  The functionalities to be represented as a use case.

  Register Employee: this represents the registration of employee including add new employee and update registered employee details.

  Track Employee: it represent the employee tracking functionality of our project.it also include update employee location which is done after tracking and manage employee attendance automatically.

  Assign Task: this use case represent the those behaviour of our system which is use for assign a task for employee and also update assign task status after completion of task and view assign task any time.

  Manage Dashboard: we have added a functionality like manage dashboard, it include view assign task and update task status by employee.

7.3 Sequence Diagram

A sequence diagram is a kind of interaction diagram that shows how process operate with one another and in what order. It is a construct of a Message Sequence Chart. A sequence diagram shows object interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams are typically associated with use case realizations in the Logical View of the system under development. Sequence diagrams are sometimes called event diagram, event scenarios.

A sequence diagram shows, as parallel vertical line (lifelines), different processes or objects that live simultaneously, and, as horizontal arrows, the messages exchanged between them, in the order which they occur. This allows the specification of simple runtime scenarios in a graphical manner.

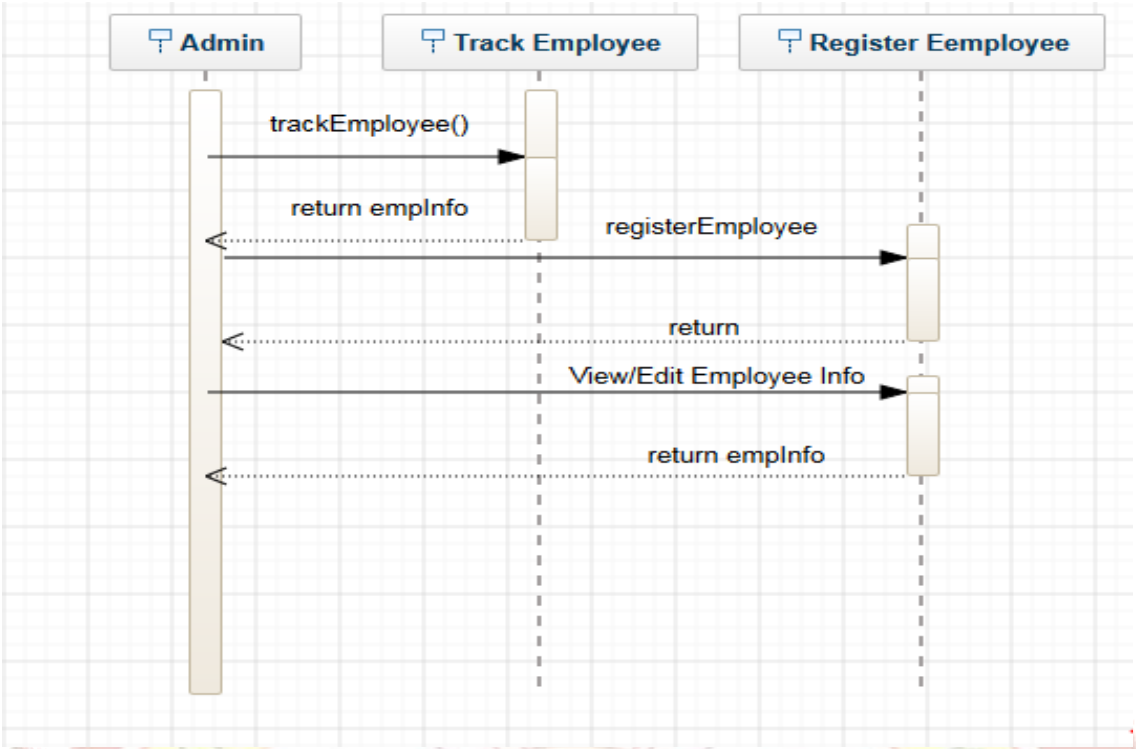


Figure: 7.4(Sequence diagram 1 of employee tracking system)

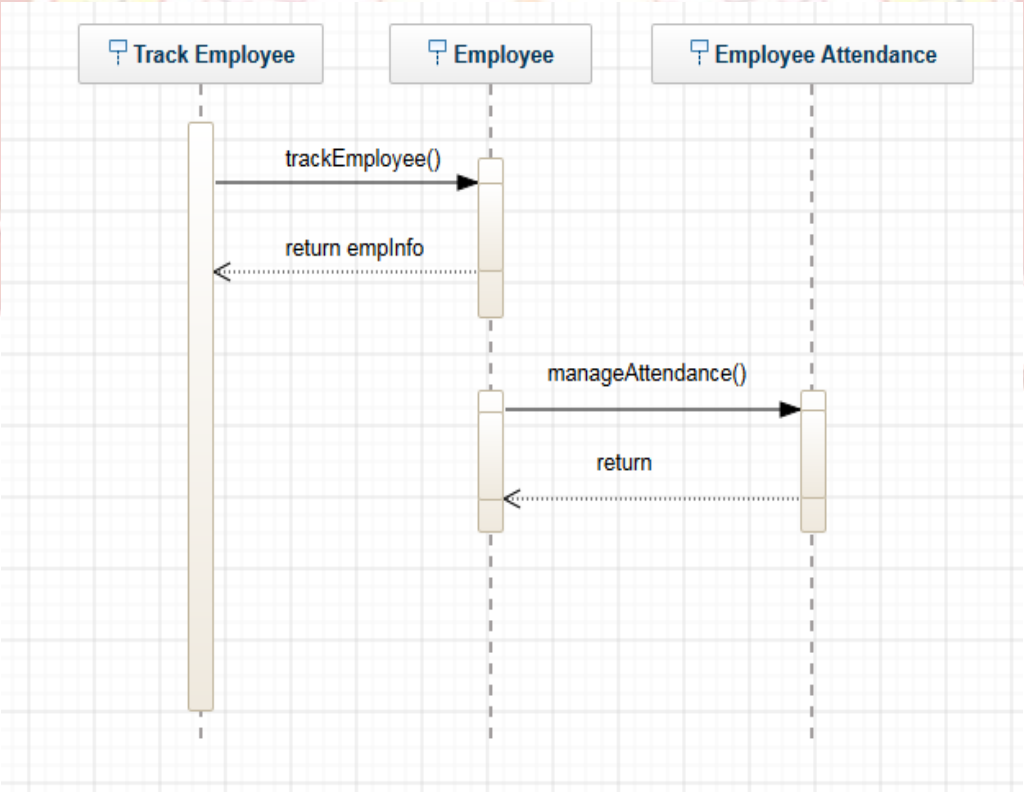


Figure: 7.5(Sequence diagram 2 of employee tracking system)

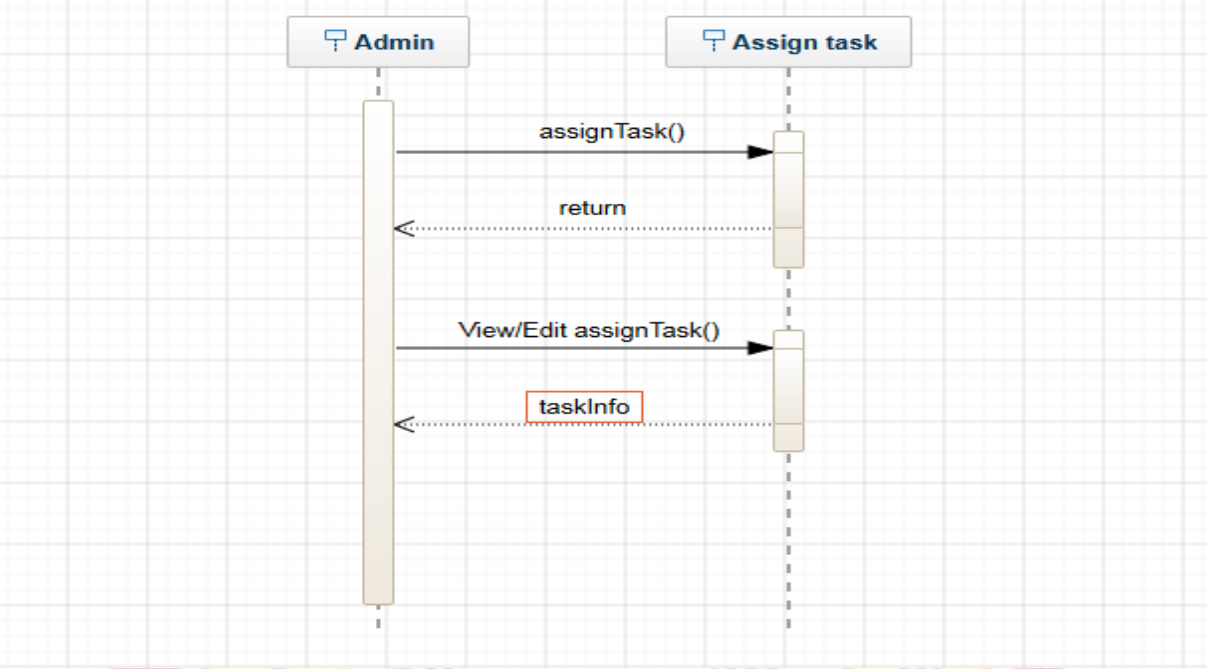


Figure: 7.6(Sequence diagram 3 of employee tracking system)

7.4 Data Flow Diagram

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modelling its process aspects. A DFD is often used as a preliminary step to create an overview of the system, which can later be elaborated. DFDs can also be used for the visualization of data processing (structured design).

A DFD shows what kind of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored. It does not show information about the timing of process or information about whether processes will operate in sequence or in parallel.

DFD level 0

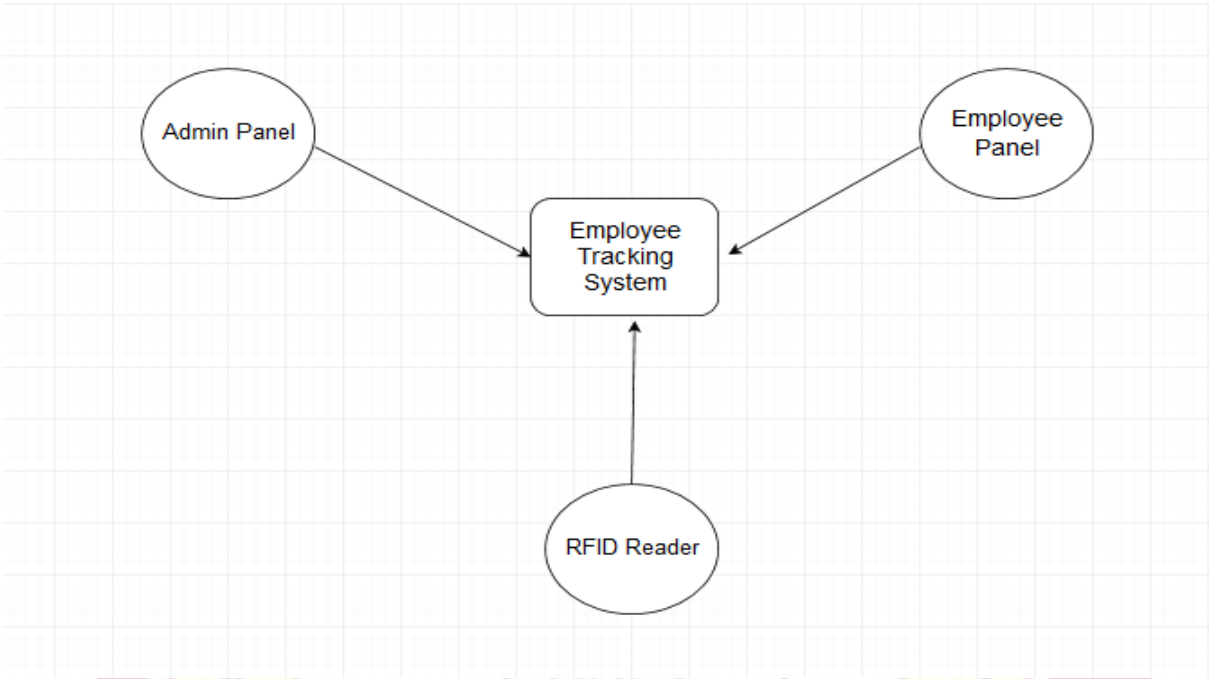


Figure: 7.7(DFD level 0 of employee tracking system)

DFD level 1

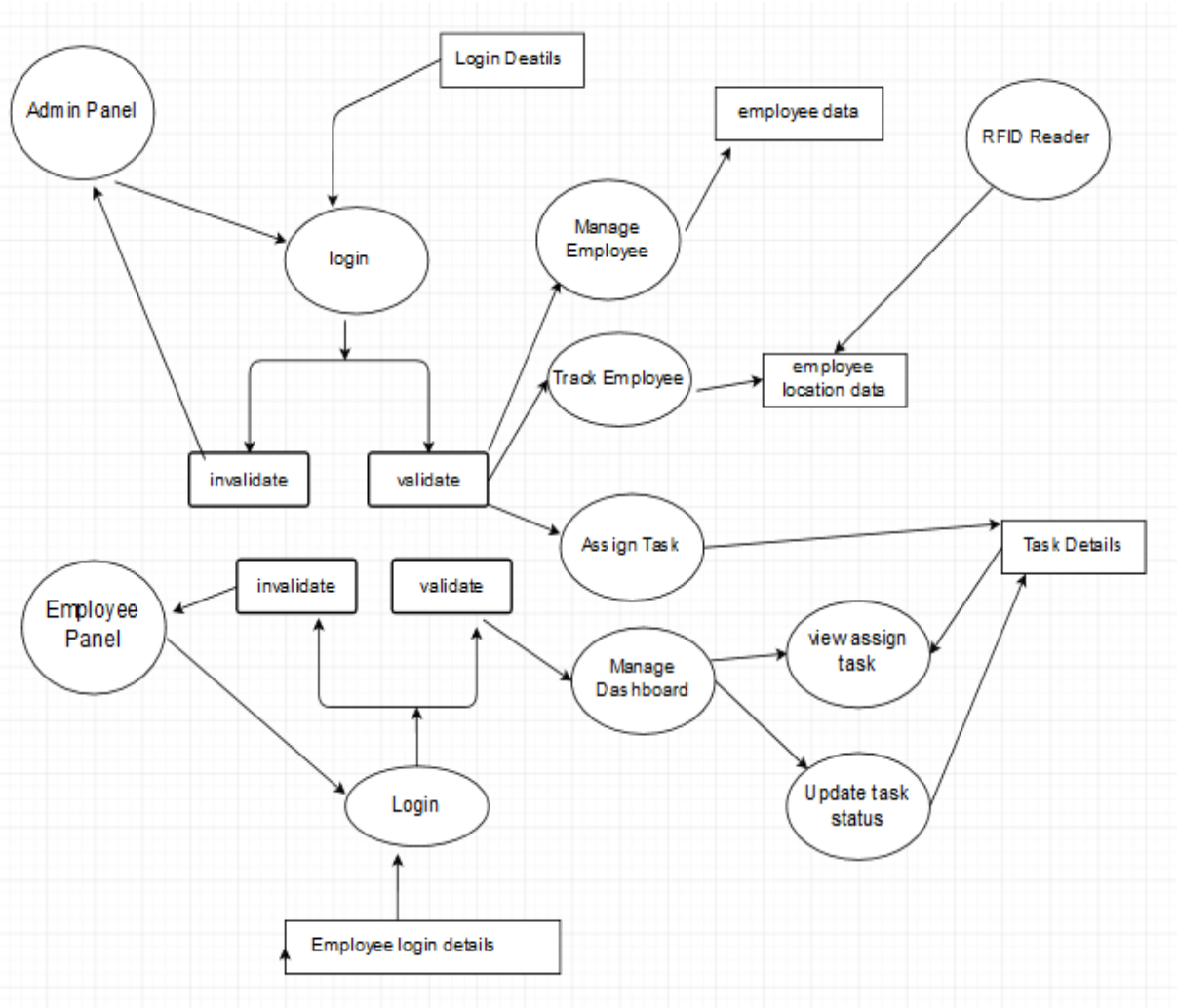


Figure: 7.8(DED level 1 of employee tracking system)

7.5 Entity Relationship Diagram

The ER model defines the conceptual view of a database. It works around real-world entities and the associations among them. At view level, the ER model is considered a good option for designing databases.

An entity can be a real-world object, either animate or inanimate, that can be easily identifiable. For example, in a school database, students, teachers, classes, and courses offered can be considered as entities. All these entities have some attributes or properties that give them their identity.

Entities are represented by means of their properties, called **attributes**. All attributes have values. For example, a student entity may have name, class, and age as attributes.

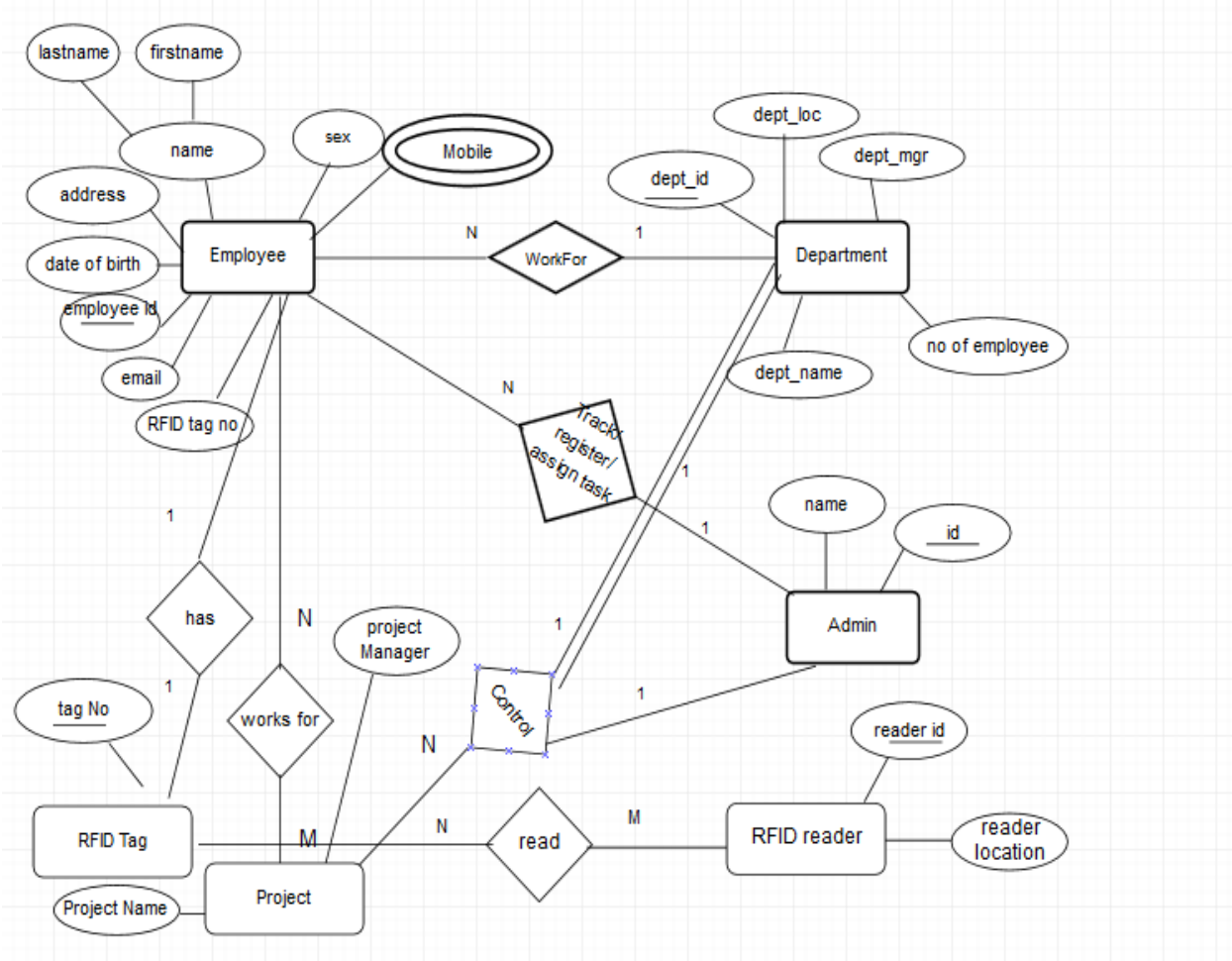


Figure: 7.9(ER Diagram of employee tracking system)

8. SYSTEM IMPLEMENTATION

8.1 Table structure of database

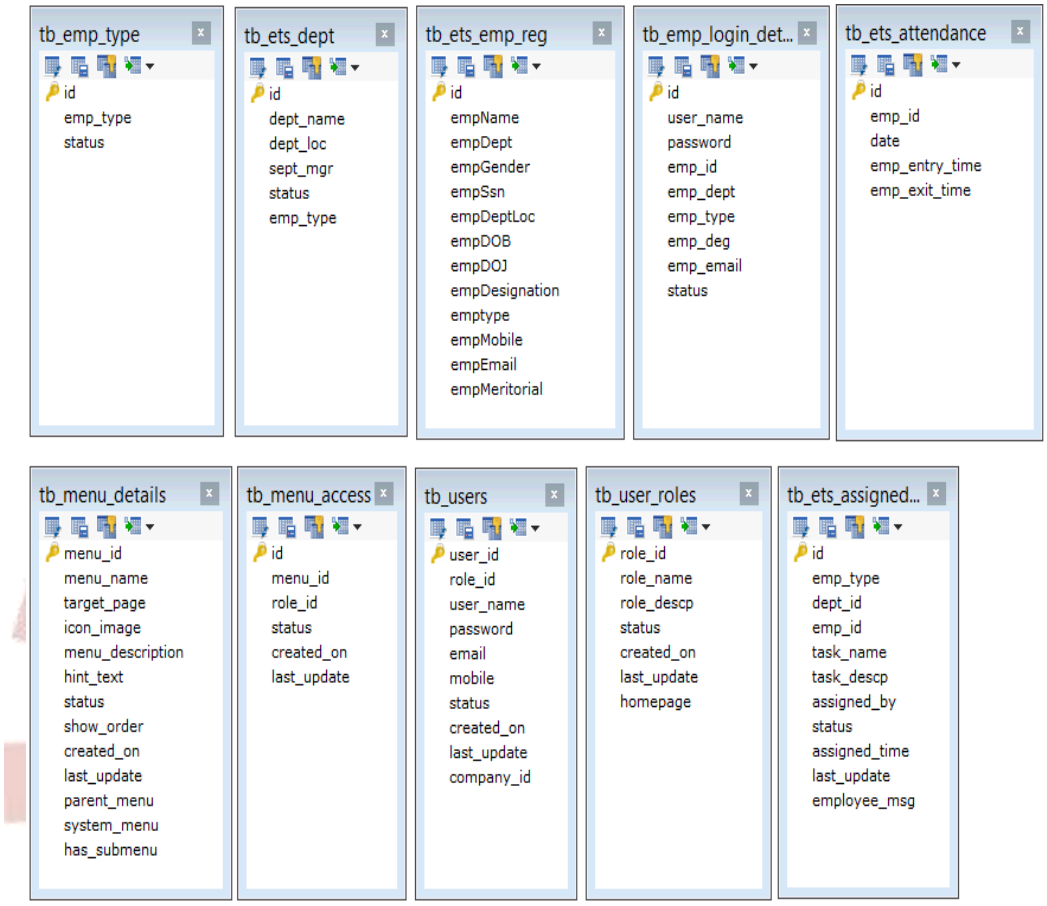
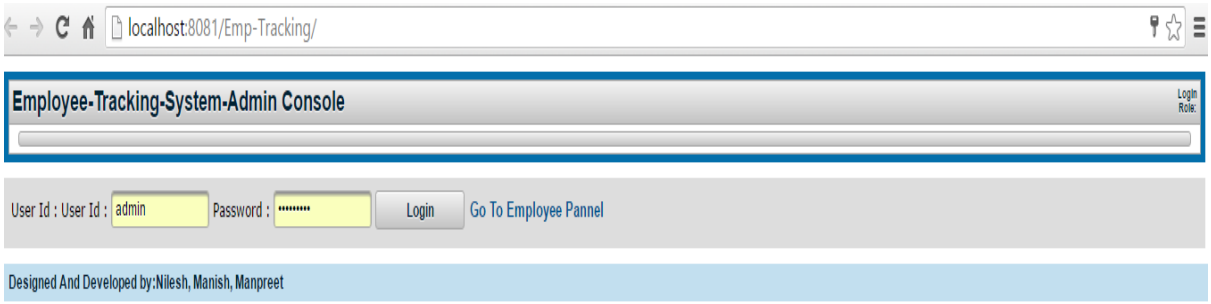


Figure: 8.1. (Table structure of Database of employee tracking system)

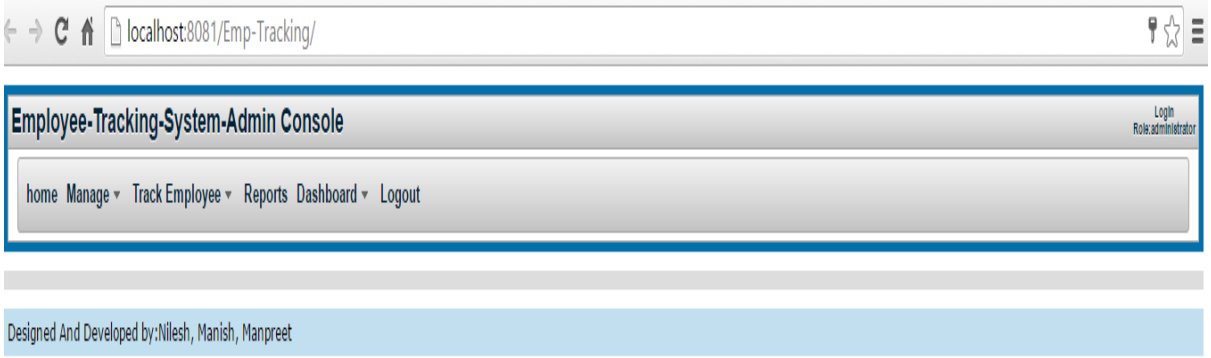
9. Screenshots

9.1 Home Page



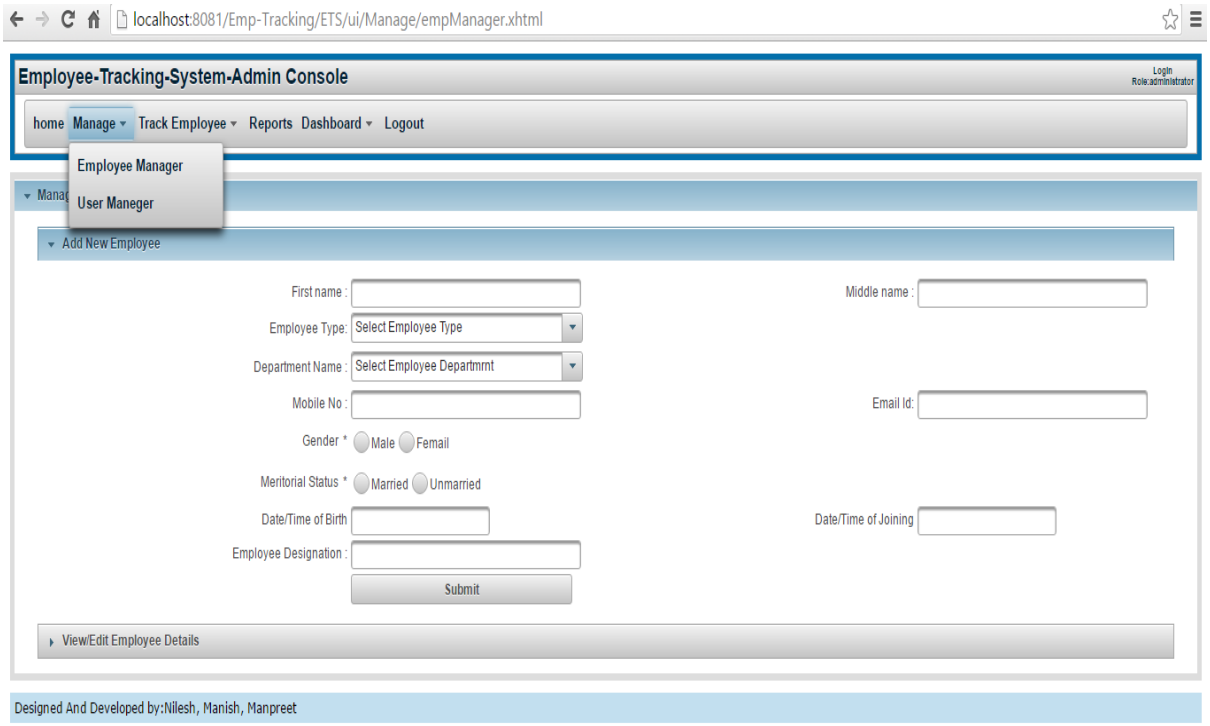
Screenshot 1(Home page)

9.2 Admin Console



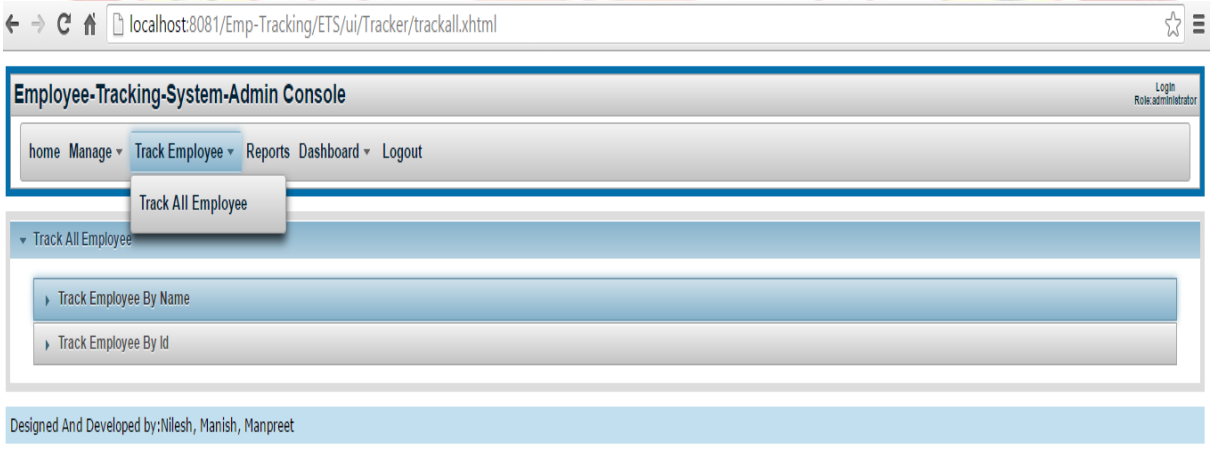
Screenshot 2(Admin console)

9.3 Register Employee



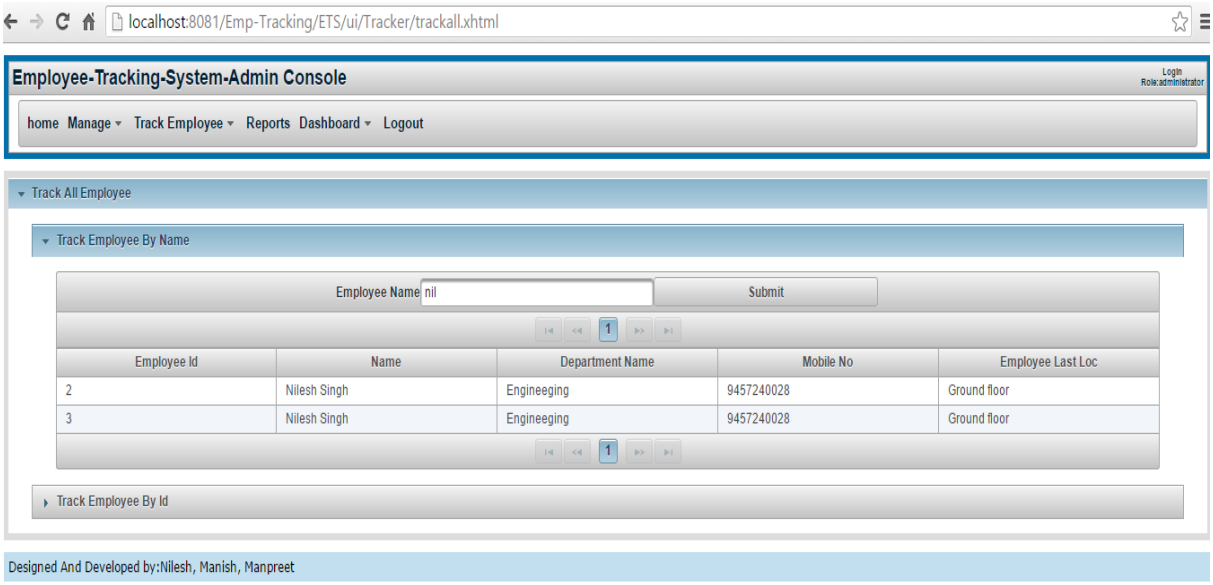
Screenshot 3(Register Employee)

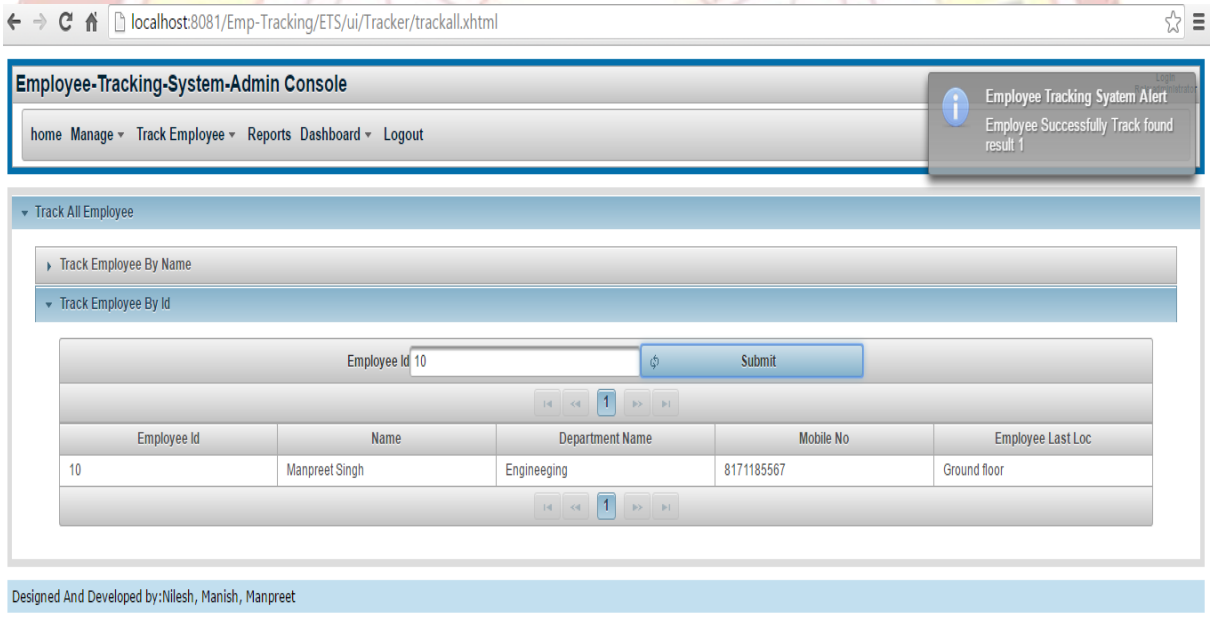
9.4 Track Employee



Screenshot 4(Track Employee)

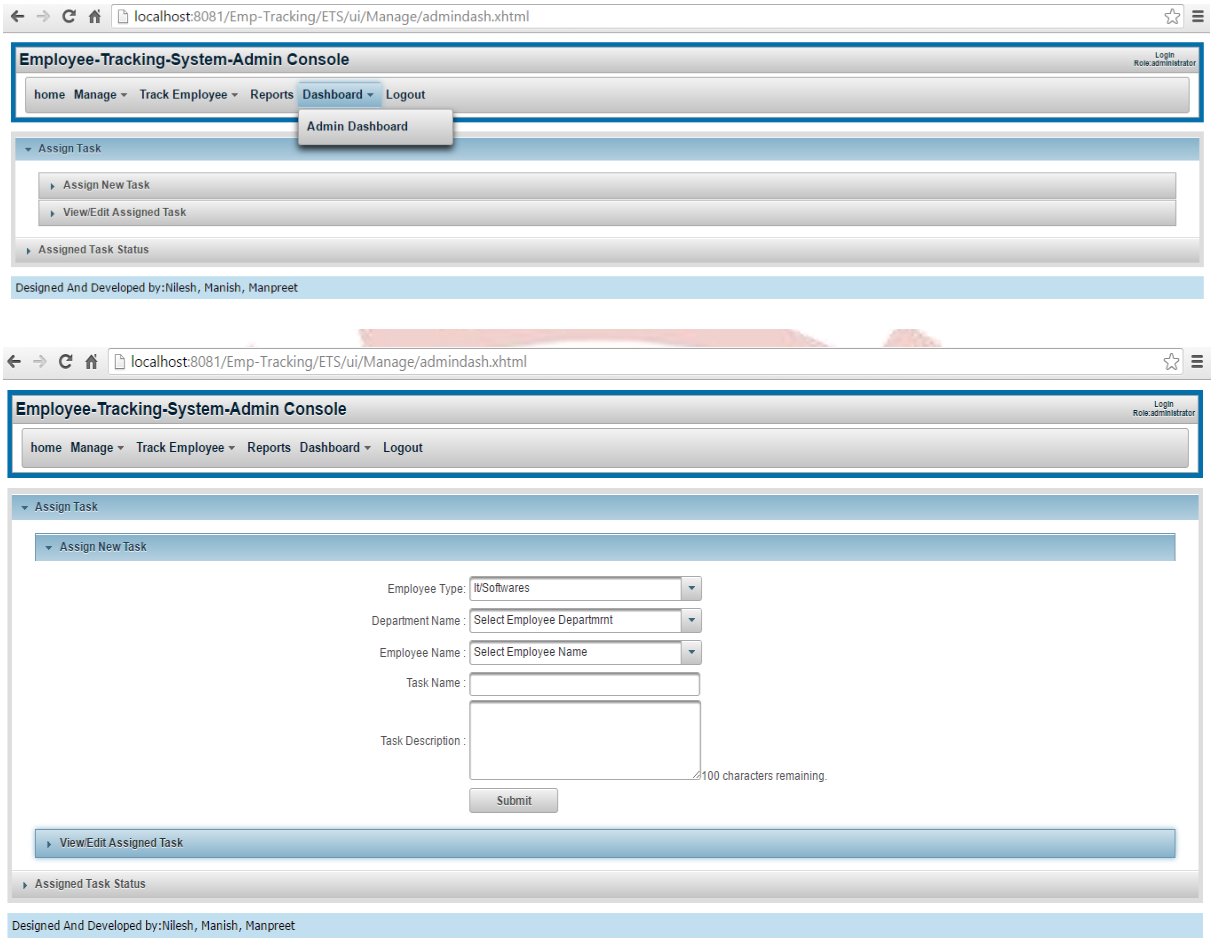
9.5 Track Employee by Name\ Id





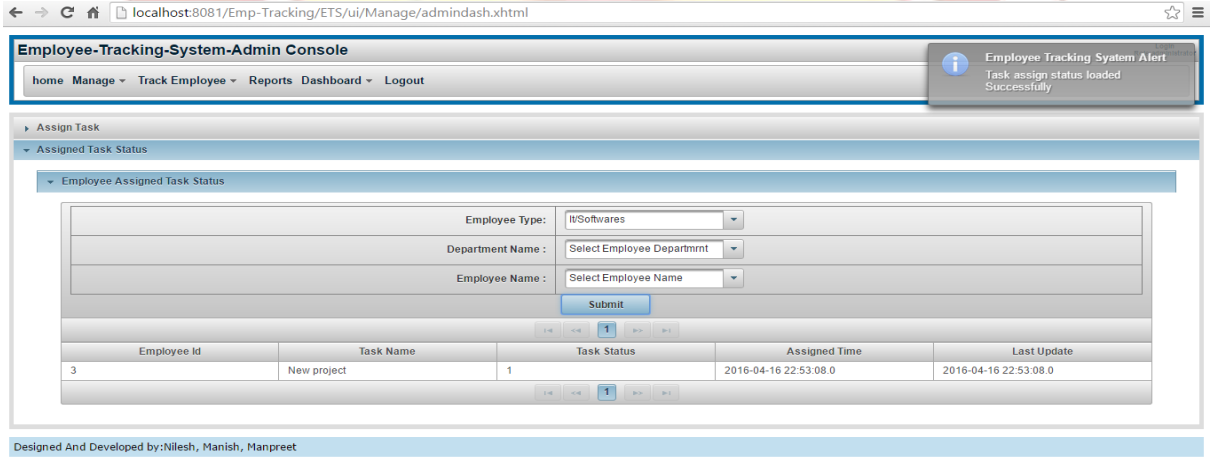
Screenshot 5(Track employee by Name/Id)

9.6 Assign Task



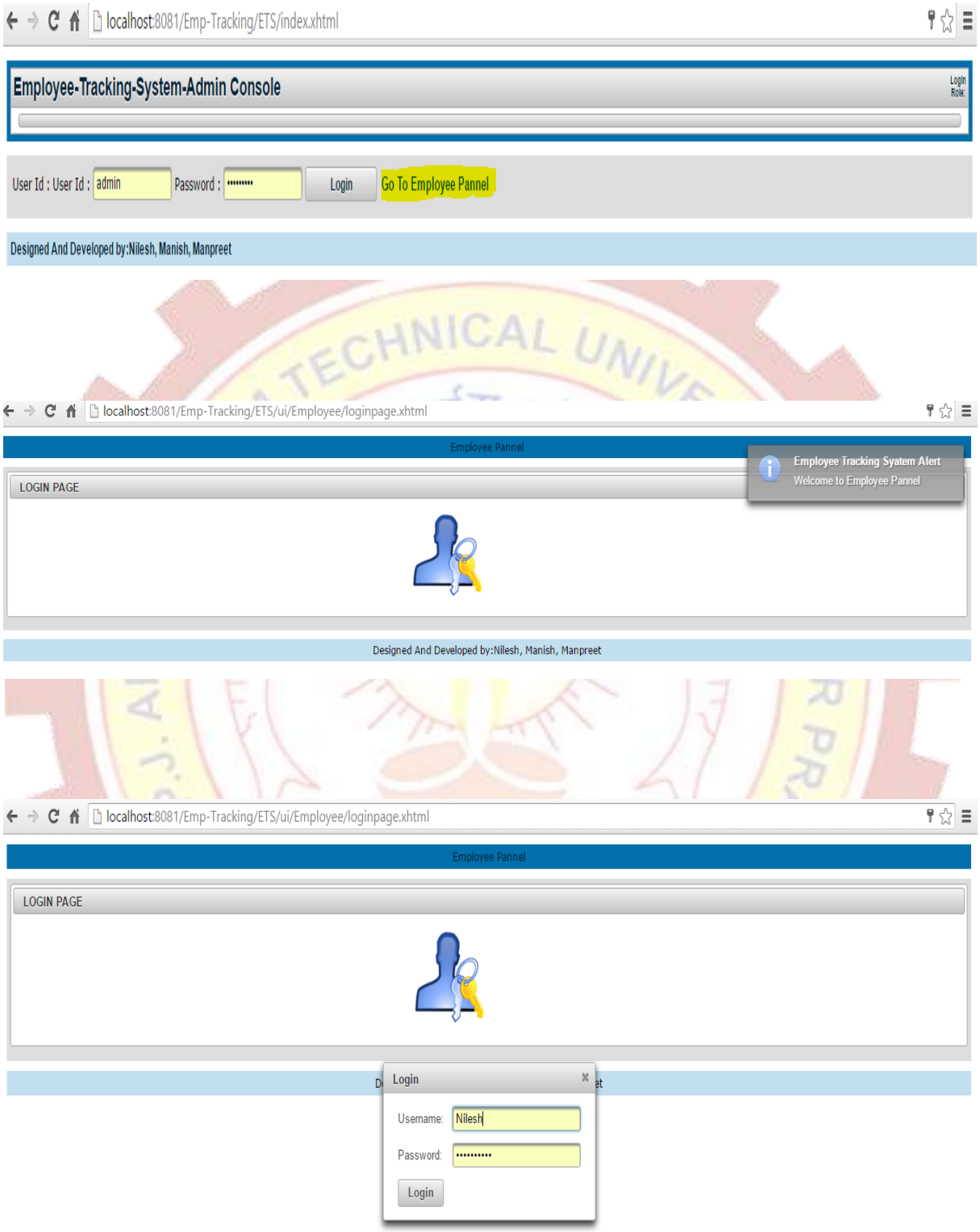
Screenshot 6(Assign task)

9.7 View assigned task Status



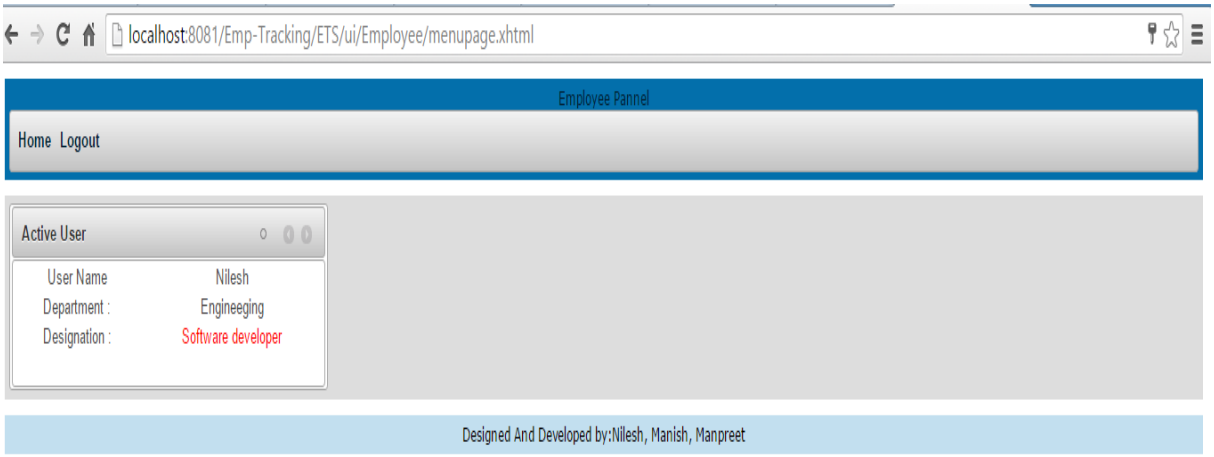
Screenshot 7(Assign task status)

9.8 Employee Panel



Screenshot 8(Employee panel)

9.9 Employee home page



Screenshot 9(Employee home page)

10. Limitation of the Project

DRAWBACKS OF CURRENT SYSTEM

MONITORING prevents efficiency while surveillance has its benefits its all has drawback that contribute to employee turnover and anxiety , the society for human resource management reported .productivity can be negatively affected if worker observation become to intrusive.

11. Future Scope of the Project

1. This GUI Application can be further modify to a large scale organization.
2. Each module of the application can be further modified & extended. Such as recruitment, planning, people management, payroll, appraisal, **employee tracking policies**.
3. For a business application it can be further modified to a web application.

12. Conclusion

In today's world. Man struggle to make his life easier. The need for tracking has assumes high importance because of varied and diverse resources. Then be it a product of a company being shipped from the company to consumer. Be it the assets, and be it in the supply chain management or for that matter even the man-power. In large organizational building. Where the man-power is high. People are not always in their cabins. They have to wander from room to room, floor to floor to perform their work.in such cases. It becomes extremely difficult to keep track of people and find them when they are needed.

Solution for the above problem is as further a tracking system which can track an individual when they enter a room would suffice the need. This process should take place in hassle free manner and therefore a wireless system would be advantageous. A reciver can be placed in each of the rooms in the building and connected to a computer system which can take input from the connected receiver and enter it in a database of all individual or personal in the building. The receiver would receive input from a transmitter which would be given to all people working in the building. Since all the information is logged in a database, any person in the building will be able to access this information through any computer connected to this system and come to know the location of the person he or she is seeking for.

Finally I conclude that this project plays an important role in tracking the timings of the employee and how much time he is working and the entry time and exit time .When an employee cross the gate number of times. And maintain like a small database about the timings of the employee.

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