System Design 05

# **5.1 Introduction**

This chapter would dig into the core of the total designing process. The MVCS systems design is presented gradually by stating the overall system architecture. Then the rest of the architectural designs would be described independently. The software design, the module architecture, the database, web application, tab application and the interface design would all be dealt with in detail. This chapter would be the place where all the analysis and research comes in to usage. The theory will be tested in to practice and the limitations and ideas would be spelt out at each level of the design.

# **5.2 Overall System Architecture**

Architectural design defines the overall structure and the connections in between components of the solution before moving on to the detail design or the low level design which includes the design of specific components details. The architectural design is given according to the three-tier-architecture where overall design is spilt in to three layers of Client Tier, Application Tier and Data Tier. The overall system architectural design for the proposed system is as follows.



As the above given design illustrates company office web application is build and hosted in a web server along with a central database. A web service is attached to the web application in order for agent tab application and client mobile app to connect with the company web application. Web service is accessible through internet or data communication media.

4.1.1Application Layer

The company logics and processes of the system will be executed at this layer in order to achieve the expected objectives of the system and can be named as the heart of the overall system. This layer will interact between application layer where the interfaces are running and data layer where the information is stored. Data gathered by user inputs or by other processes will be manipulated according to the predefined operational instructions at this layer. The client, incident and vehicle information will be applied in the application for the user to access and input data. The main components of this layer will be the web application for ground staff and the web service hosted for the communication of tab application and phone application.

4.1.2Data Layer

Data layer manage the data storage operations of the overall system where the database management applications are running. A central database containing the information about policies, claims, vehicles, spare parts and employees will be stored in several tables in the database in order to improve the efficiency. Tab application and the mobile application will communicate with the database through web service while web application will directly communicate with the database.

4.1.3 Presentation Layer

Presentation layer is responsible of control interactions with users by monitoring interfaces to current requested information and retrieve the inputs delivered by the user. Information gathered by this layer will be provided to the application layer in order to manipulate according to the given instructions. Main system components in this layer are tab application and the mobile application. Data added through the apps will be communicated to the company web application through the web service.

4.2 Software Architecture

Software architecture was based on modularized approach where the software is divided into parts. Each module is assigned to execute one or more tasks of the overall system in order to achieve the ultimate objectives expected. The software architecture is details in the following illustration and we see the different layers of the total system.

The solution has three major user interacting components namely web application, tab application and the mobile application. Operating staffs web application will be the major data source for the database. They will be in charge with registering policies, updating vehicle details and process and also administrative purposes also. Tab application will be used to issue a claim to the client and claiming agent’s needs to log into tab application to conduct the claiming process. Client mobile application is used to inform the office about the accident via web to the operating staff with its GPS coordinates. These 3 components are connected by the web service to the web application and to the database.

4.4 Module Architecture

Main modules and sub-modules

* Online claim management system (Web application)
  + Insurance policy module
  + Customer details module
  + Vehicle detail management module
  + Spare parts module
  + Garage services module
  + Tow truck services module
  + Client requests module
  + Employees and user account management module
  + Claim review module
  + Vehicle categories module
  + Spare part categories module
  + Manufacturers module
* Web service module
  + Connect tab application and mobile application to the web application component.
* Authentication module
  + Authentication to the web application
  + Authentication to the Tab application
* Tab application component
  + Policy information module
  + Claim history information
  + Spare part details module
  + Claim assessment module
  + Image upload module
  + Garage services module
  + Tow truck services module
* Mobile application component
  + Inform accident with GPS coordinates