Online Bus Booking and Tracking System for SLTB

Central Bus Station - *Colombo*

A Software Design Specification

B.W.G.N Ranathunge

Contents

1. Introduction

It is very important to maintain efficient software to handle bus booking services in every place. The Online Bus Booking and Tracking System provides a way to record the information and to access them in a simple way. This document describes the software design specification (SDS) for the Online Bus Booking and Tracking System, and provides an overall description of the system design.

1.2.2. System Overview

In Sri Lanka there are few bus booking centers. . Up to date most processes in bus booking center being carried out manually. Therefore it takes much time to fill information and produce the ticket. Hence there are queues. And also it is not possible to do a bus booking at any time of the day (24 hours). Because it is open only at working hours. SLTB bus booking center is situated in pettah. Therefore it is difficult to book your tickets without going for the center. It is waste of both time and money for coming to the center for reserve your tickets. But without reserving the tickets it may also cause waste of time and lack of comfort. In such cases people require a possible solution. Due to their manual system and less information technology they couldn't settle an appropriate method for above problems.

Web based online bus booking system is the solution for above problems. To the people who suffer to go to places to reserve their tickets, this system may be a great solution. And after reserving their ticket they do not need to wait at the bus stand until bus comes, they could track the location of the bus and be at time. So it would be a quiet nice journey for passengers. Therefore this system is going to develop not only for online bus booking service and also to track the location. PHP, HTML, CSS, Ajax, jQuery, MySQL and android would be used to develop this system.

2. Design Considerations

This section describes many of the issues which need to be addressed before attempting to devise a complete design solution.

2.1. Assumptions and Dependencies

- The user must have the ability to use the internet.
- The user must have connected to the internet to use the internet.
- The user should have internet or android phone to have the location of the bus.
- TCP/IP protocol must be installed to communicate through HTTP messages.
- The accuracy of the information of users is the responsibility of all users.

2.2. General Constraints

Since the application is a web – based mobile application there are some constraint in selecting the mobile server and the generation of reports.

2.3. Goals and Guidelines

In the system design of the online bus booking and tracking system I always used to keep the arrangement very simple and work, look and feel like the online bus booking and tracking system is an existing system.

2.4. Development Methods

Since the user requirements are clearly defined and the problem is structured the Structured System Analysis and Design Method (SSADM) is used to develop the online bus booking and tracking system

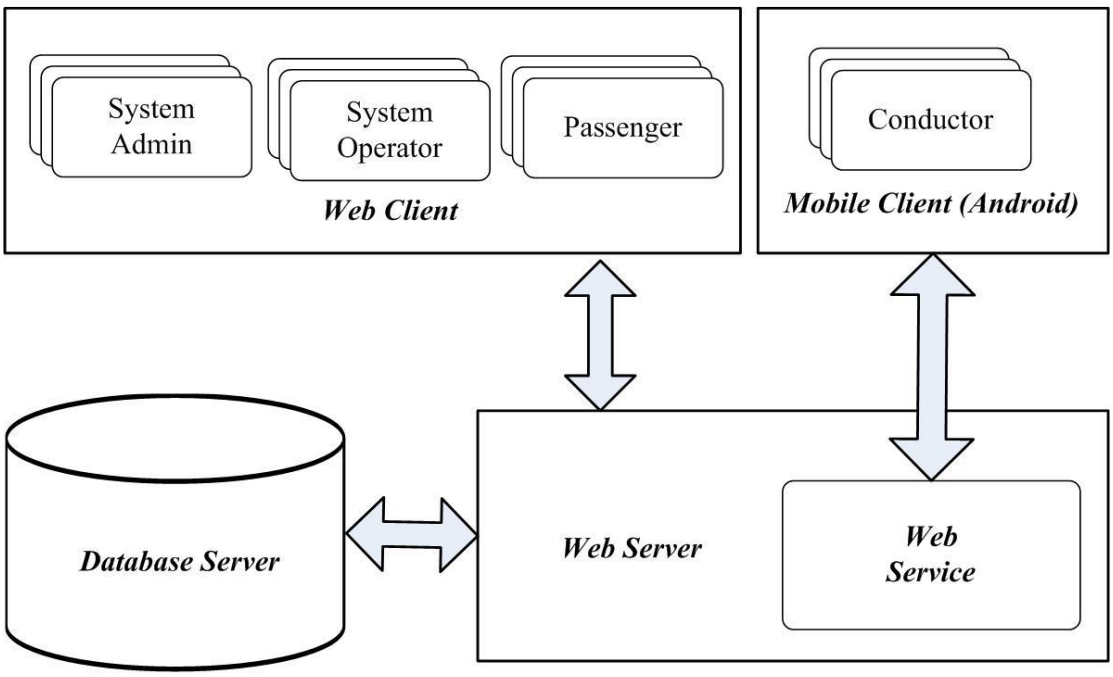
3. Architectural Strategies

Web based administration system consists of five modules such as database module, web client module, web server module and web mobile client module. These modules are implemented using various technologies such as such as PHP, HTML, CSS, Ajax, jQuery and MySQL, MVC and android in developing the solution. All those technologies used to design the system and achieve the vision of this system.

4. System Architecture

In Top Level Architecture of **(**OBBTS**)** have mainly four modules. As the figure displays they are Web client Module, Database Module, Mobile client Module, Web server Module and its sub module as Web services Module.

Top Level Architecture of (OBBTS)



4.1. Subsystem Architecture

This system comprises of following modules.

- Database Module
- System Operation Module
- Administration Module

- Booking Module
- Tracking Module

Firstly, the Administration Module is responsible for giving permission to users to access the system according to their responsibilities. Administrator controls the access level. There are two kind of system operator. First type of operators input bus details, bus route, ticket price, etc. And other type operators do booking tickets for people who comes to center to book there ticket. They book the ticket through **(**OBBTS**).** So the administrator manages user levels of operators and view daily reports. System Operation Module is used to intake the inputs such as, bus details, bus route, ticket price, creating new users, dropping users from the system, update information to system and permits to access the system to the users to select their destinations, bus entry point and reserve the seats. Thirdly, the Booking Module is the most important module of this system. Through booking module booker can select destination and bus seats, enter details, pay payments and print tickets, etc. And Database Module will facilitate the functionalities stores and view data's of all the users and other details, etc. Tracking Module is design to give location details for the passengers through a map in the system. They could observe it through internet or android phone.

5. Policies and Tactics

Booking Module is the most important module of this system. Through booking module booker can select destination, bus seats, bus entry point and enter details, pay payments print tickets, etc. This module interacts with database module through https protocol. The tracking module generates longitudes, latitudes of the location to the tracking system. It interacts with the web services module. This is used to get details from web service modules such as customers' details, destination, etc.

6. Detailed System Design

This section provides a detailed design of the system including its module descriptions.

6.1. Classification

Use case diagram shows the interaction between the user roles (actors) with the system. In this system actor such as Admin, System Operator, Booker, and Conductor interact with the system. Class diagrams show the classes of the system, their interrelationships (including inheritance, aggregation, and association), and the operations and attributes of the classes. Class diagrams are used for a wide variety of purposes, including both conceptual/domain modeling and detailed design modeling.

6.2. Definition

This system comprises of following modules.

- Database Module
- System Operation Module
- Administration Module
- Booking Module
- Tracking Module

Module 1-Database module

In this module it handle whole database which are related to this **(**OBBTS**)**. The information which has to store, are concern in this module. This interacts with other module, Booking Module. To create this module supposed to use MySql. This module will be used by users such as administrator, system operators.

Because all processes which are done by this system may have taken/stored their information in Database module such as information of buses, destinations, employees, customers' details and payment details

ER diagram represents the system database architecture and its relationship. Good ER diagram will make the system run smoothly and allow performing faster. It speeds up data retrieval and saving. This make the system run faster.

Module 2- System Operation Module

In this module it updates daily bus details such as bus routes, bus class, time schedules, ticket price, bus entry points and other important information. And it has access to create new

Module 3 - Administration Module

Administration Module is responsible for giving permission to users to access the system according to their responsibilities. Administrator controls the access level. And administrator view daily reports and manage the system. Administration module interacts with the system operator module by giving control of its access level.

Module 4 – Booking Module

Booking Module is the most important module of this system. Through booking module booker can select destination, bus seats, bus entry point and enter details, pay payments print tickets, etc. All those details are stored in database through database module. Therefore this module is also interacts with database module through https protocol.

Module 5 – Tracking Module

Tracking Module is design to give location details for the passengers through a map in the system. They could observe it through internet or android phone. Tracking module interacts with mobile client (android) and web services. Android technology cannot interact with web server. Therefore it interacts through web services. This is an important module in this system which differentiates from other alternative solutions for bus booking problems in nowadays. Uniquely it differentiates due to tracking the locations.

6.4. Constraints

All document of the system must be prepared relate d to IEEE standards.