PACEMAKERS

SMART CITY

Software Requirement Specification

Version 1.0

Team Guide: Mr. Neeraj Chugh

Members:
1. Ankit Kumar
2. Pankil Ahuja
3. Shubham Jain
4. Abhishek Lal Mehra

College Name: University of Petroleum and Energy Studies (UPES), Dehradun

Department: College of Engineering Studies (COES)

State: Uttarakhand
Revision History

<table>
<thead>
<tr>
<th>Date</th>
<th>Version</th>
<th>Description</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 29th, 2010</td>
<td>1.0</td>
<td>Synopsis</td>
<td>PACEMAKERS</td>
</tr>
</tbody>
</table>
# Table Of Contents

<table>
<thead>
<tr>
<th>Description</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.0 Introduction</strong></td>
<td></td>
</tr>
<tr>
<td>1.1 Purpose</td>
<td>5</td>
</tr>
<tr>
<td>1.2 Scope</td>
<td>5</td>
</tr>
<tr>
<td>1.3 Definition, Acronyms, and Abbreviations</td>
<td>5</td>
</tr>
<tr>
<td>1.4 Technologies to be used</td>
<td>6</td>
</tr>
<tr>
<td>1.5 Overview</td>
<td>7</td>
</tr>
<tr>
<td><strong>2.0 Overall Description</strong></td>
<td></td>
</tr>
<tr>
<td>2.1 Product Perspective and functions</td>
<td>8</td>
</tr>
<tr>
<td>2.2 Software Interface</td>
<td>9</td>
</tr>
<tr>
<td>2.3 Hardware Interface</td>
<td>9</td>
</tr>
<tr>
<td>2.4 User Characteristics</td>
<td>10</td>
</tr>
<tr>
<td>2.5 Constraints</td>
<td>10</td>
</tr>
<tr>
<td>2.6 Architecture Design</td>
<td>11</td>
</tr>
<tr>
<td>2.7 Use Case Model Description</td>
<td>13</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>2.8 SEQUENCE DIAGRAM</td>
<td>15</td>
</tr>
<tr>
<td>ER</td>
<td>15</td>
</tr>
<tr>
<td>Schema</td>
<td>16</td>
</tr>
<tr>
<td>2.9 Class Diagram</td>
<td>17</td>
</tr>
<tr>
<td>3.0 Specific Requirements</td>
<td>18</td>
</tr>
<tr>
<td>3.1 Use Case Reports</td>
<td>18</td>
</tr>
<tr>
<td>3.2 Supplementary Requirements</td>
<td>20</td>
</tr>
</tbody>
</table>
Software Requirements Specification

1.0 Introduction:

1.1 Purpose:

This document based on smart city project gives an overview of our mainframe ideas which form the bottom-line of our project. It gives a systematic way to look through the project and analyze the horizons of the thought process behind the system. This would also give an interface for the TGMC and the team. This document gives out the functional and non-functional requirements of the project. The final product would be as per the specifications in this SRS.

1.2 Scope:

The project defines and gives the different perspectives related to tourism (related info), security (helplines, permission) of the residents as well as outsiders, networking amongst the people related to this city, alerts for events, educational institutions, business prospects (existing aspects, avenues not explored), city history and Google analytics to teach traffic on portal.

1.3 Definitions, Acronyms, and Abbreviations:

HTML (Hyper Text Markup Language): It is used to create static web pages.

JSP (Java Server Pages): It is used to create dynamic web content.

J2EE (Java 2 Enterprise Edition): It is a programming platform, belonging to the Java platform, developing and running distributed java applications.

WASCE (WebSphere Application Server Community Edition): It is an application server that runs and supports the J2EE and the web service applications.
WSAD (WebSphere Studio Application Developer): It is a designer toolkit which is designed to develop more complex projects by providing a complete dynamic service.

DB2 (IBM Database 2): It is a database management system that provides a flexible and efficient database platform to raise a strong "on demand" business applications.

HTTP (Hyper Text Transfer Protocol): It is a transaction oriented client/server protocol between web browser and a web server.

XML (Extensible Markup Language): It is a markup language that was designed to transport and store data.

Ajax (Asynchronous Java Script and XML): It is a technique used in java script to create dynamic Web pages.

Web 2.0: It is commonly associated with web applications which facilitate interactive information sharing, interoperability, user centered – design and collaboration on the World Wide Web.

1.4 Technologies to be used:

- AJAX: for registration forms of customers.

- JASPER: to show strategic data to admin.

- RATIONAL ROSE: is a UML modeling and model driver development solution.

- J2EE: it is an application architecture, stands for JAVA 2 ENTERPRISE edition. It harnesses the latest innovations from the open source community and provides a readily accessible and flexible foundation for building JAVA applications.

- XML: it provides with a great deal of functionality and power and it is a simple and straightforward technology.

- E FORMS: electronic form

- WEB 2.0: is a term often applied to a perceived ongoing transmission of the World Wide Web from a collection websites to full fledged computing platform serving web applications and users.
-WEB SERVICES: to help build run integrate and manage dynamic on demand business applications.

-SOA: stands for service oriented architecture. It is an architectural IT style that supports transformation of your business into a set of linked services that can be accessed when needed over a network.

-ECLIPSE: it focuses on developing a universal platform of frameworks and powerful tools that makes it easy and cost effective to build and deploy software.

-WEBSPHERE MODELLER: it is a JAVA2 platform. It provides a readily accessible and flexible foundation for building JAVA applications.

-DB2 EXPRESS C: it is a version of universal database express edition. It offers a solid base to build and deploy all applications.

-TIVOLI DIRECTORY SERVERS: it uses the proven TIVOLI storage managers technologies to backup and recover vital data.

-O.S.: Operating System used is LINUX.

-WEBSPHERE PORTAL: It is the market leading internet infrastructure software for building running and integrating business application across a variety of computing platform.

1.5 Overview:
The SRS will include two sections, namely:

**Overall Description:** This section will describe major components of the system, interconnections, and external interfaces.

**Specific Requirements:** This section will describe the functions of actors, their roles in the system and the constraints faced.
2.0 Overall Description:

2.1 Product Perspective and Functions:

Providing:

History of the city:

-description(overall) for the city

Sharing experiences.

(TOURISM)

Information of all the available hotels.

Classifying them into A, B, C, D category and providing links (if available) if not then info about.

-distance from main destinations, tourist spots.

-monetary aspects.

-communicating options with approx cost(grand reality)

SECURITY

-having the help lines a click away.

-providing all important phone number.

NETWORKING

-sign ups.

-limited access of website without sign ups.

-paid sms alerts.

EDUCATIONAL INSTITUTIONS

-history, admission procedures, records (grand realities).
-links

BUSINESS

-existing

-avenues not explored and why.

## 2.2 Software interface:

1) FRONT END CLIENT:-
   -the customer must connect to the internet to access the website.
   -dial up modem of 52 kbps.
   -any internet connection.

2) WEB SERVER:-
   Web 2.0.

3) DATA BASE SERVER:-
   DB2-express.

4) BACK-END:-
   operating system:- LINUX
   -A professional to maintain the product.

## 2.3 Hardware Interface:

1) CLIENT SIDE:-
   -Processor: PENTIUM III 2.0 GHz or higher.
   -RAM: 256 MB or more.

2) SERVER SIDE:- Processor: - Pentium III 2.0 GHz or higher
2.4 User characteristics: -

- Tourist: - all tourists will feel like they have a virtual guide and they can avail all the necessary information about city and major picnic spots before coming to the city.

- People looking for job opportunities: - all the major opportunities will be listed.

- Students looking for admission into schools and colleges.

- Businessmen: - will prove a boon for business people as they can advertise and make their business popular and new entrepreneurs can also take help by enquiring about new upcoming businesses and their aspects.

2.5 Constraints: -

1) HARDWARE CONTRAINTS: -

- The system requires a database in order to store persistent data. The database should have backup capabilities.

2) SOFTWARE CONSTRAINTS: -

- The development of the system will be constrained by the availability of required software such as web services, database and development tools. The availability of these tools will be governed by IM.

3) DESIGN CONSTRAINTS: -

- The system must be designed to allow web mobility. That is, the system must be designed in such a way that will be easy and visible on most of the browsers.
2.6 Architecture Design:

<table>
<thead>
<tr>
<th>ARCHITECTURE</th>
<th>FEATURES</th>
</tr>
</thead>
</table>
| SQA (software quality assurance) processes | - testing the feasibility of the various sections  
- project plan  
- reviews and audits  
- user helps, documentation and online manuals etc. |
| Key activities            | - add or delete user accounts  
- add or delete information  
- verify and modify knowledgebase |
SEQUENCE DIAGRAM:

ADMIN

MANAGER

LOGIN

SQA PROCESSES

Testing of various services

Project plan

Reviews and audits

User helps, documentation manuals

KEY ACTIVITIES

Add or delete accounts

Add or delete information

Verify knowledgebase
Reviews and Audits

Planning and budgeting (benchmarking project and partner selection)

Improvement (Adaption and implementation)

Implementation (Data collection)

Review (data analysis and improvement and opportunities)

2.7 USE CASE MODEL DESCRIPTION : on next page-:
LOGIN

MAINTAIN THE INFO OF CITY

MAINTAIN THE BUSINESS REPORTS

MAINTAIN CONFIDENTIAL DATA AND SECURE REGISTRATIONS

UPDATE LOCAL NEWS, GOVT. UPDATES AND COMPLETE MAP OF CITY AND UPDATE TRAFFIC

GENERATE REPORTS AND ACCESS DIFFERENT SERVICES INCLUDING PAID SERVICES

ADMINISTRATOR

MANAGER

USER
2.8 SEQUENCE DIAGRAMS:-

1) ER DIAGRAM:-

- LOCAL AND GOVT. NEWS
- MAP OF THE CITY
- CONFIDENTIAL DATA
- ENTER PASSWORD
- ADD, REMOVE OR UPDATE
- REGISTRATION FORM
- FILL UP FORM
- MANAGER
  - LOGIN
  - GIVES DIRECTIONS
- ADMIN
  - LOGIN
  - MAINTAIN ACCOUNTS
- USER
  - LOGIN
  - GENERATE REPORTS
  - ACCESS ALL SERVICES
- SOCIAL <-> POLITICAL
- INFORMATION OF CITY
- BUSINESS REPORTS
- ADD
- UPDATE
- DELETE
- NEW
- EXISTING
2) SCHEMA:

- USER
  - LOGIN
  - MANAGER
    - DIRECTS MANAGER
    - ADMIN
      - USER ACCOUNTS
        - MAINTAIN AN
          - ADD A NEW ACCOUNT -> FILL ALL DETAILS
        - CHANGE
          - PASSWORDS
            - ENTER CURRENT PASSWORD -> ENTER NEW PASSWORD
      - REGISTRATION FORMS
        - MAP OF CITY
          - EDIT OR UPDATE
        - LOCAL OR GOVT. NEWS
          - ADD, REMOVE OR UPDATE
        - CONFIDENTIAL DATA
          - ENTER PASSWORD
          - ADD, REMOVE OR UPDATE
        - BUSINESS REPORTS
          - EXISTING OR NEW
          - ADD, REMOVE OR UPDATE
        - INFO OF CITY
          - SOCIAL OR POLITICAL
          - ADD, REMOVE OR UPDATE
2.9 CLASS DIAGRAM: following is the class diagram

```
Security

DEHRADUN
Website

Tourism  Business prospects  Networking

Traffic

Using google analytic

Related information

Controlled by the admin
```
3. SPECIFIC REQUIREMENTS

3.1: USE CASE REPORTS

BRIEF DESCRIPTION:

This use case allows the actor with role ‘Administrator’ to maintain User Accounts. This includes adding, changing and deleting user account information from the system.

ACTORS:

The following ACTOR interacts and participates in this use case:

ADMINISTRATOR.

FLOW OF EVENTS:

BASIC FLOW:

This use case starts when the administrator wishes to add, change, and/or delete user account information from the system.

- The system requests that the administrator specify the function he/she would like to perform (either ADD a user account, UPDATE a user account, or DELETE a user account).
- Once the ADMINISTRATOR provides the requested information, one of the sub flows is executed.
- If the ADMINISTRATOR selected ADD a USER ACCOUNT, the ADD a USER ACCOUNT sub flow is executed.
- If the ADMINISTRATOR selected UPDATE a USER ACCOUNT, the UPDATE a USER ACCOUNT sub flow is executed.
- If the ADMINISTRATOR selected DELETE a USER ACCOUNT, the DELETE a USER ACCOUNT sub flow is executed.

ADD a USER ACCOUNT:
1) The system requests that the ADMINISTRATOR enters the user information. This includes:
   - USER NAME
   - USER ID should be unique for each user account.
   - PASSWORD

.DELETE CANCELLED: If in the DELETE a USER ACCOUNT sub flow, the
ADMINISTRATOR decides not to delete the user account information, the delete is cancelled
and the BASIC FLOW is restarted at the beginning.

PRE-CONDITIONS:

The ADMINISTRATOR must be logged onto the system before this use case begins.

POST-CONDITIONS:

If the use case was successful, the user account information is added, updated or deleted from
the system. Otherwise, the system state is unchanged.

MAINTAIN INFORMATION:

In this section ACTOR is MANAGER

He can add or delete city information which is also divided in two sections:

1. Political info
2. Social info

MAINTAIN BUSINESS REPORTS:

In this section also ACTOR is MANAGER

He can update all information about all businesses.
Other functions which ACTOR manager can perform:

1. Maintain confidential data and secure registrations
2. Updates local news and govt. notices.

Another ACTOR is user who can login and generate different reports and access various facilities and services.

**3.2: SUPPLEMENTARY REQUIREMENTS:**

NOT APPLICABLE.