SMART Company

Geo location based Service finder for User Needs (GSUN)
Quality Assurance Plan

Version 1.0

Revision History

Date	Version	Description	Author
08/Jan/2012	1.0	Initial GSUN QA Plan	Buddhima Wijeweera

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Quality Assurance Plan

1. Introduction

The introduction of the Quality Assurance Plan provides an overview of the entire document. It includes the purpose, scope, definitions, acronyms, abbreviations, references, and overview of this Quality Assurance Plan.

1.1 Purpose

The purpose of this document is to provide a single point reference on the topic of quality for GSUN project. This document does not contain details review and evaluation techniques, criteria, metrics, etc.

1.2 Scope

Quality Assurance Plan applies to GSUN project developed by SMART Company. This document describes issues related to quality assurance. Target audience of this document is as follows:

- Project coordinators
- Quality Assurance group
- Project Manager

1.3 Definitions, Acronyms, and Abbreviations

RUP – Rational Unified Process

SDP – Software Development Plan

SRS – Software Requirements Specification

GSUN - Geo location based Service finder for User Needs

WSDL – Web Service Definition Language

SOAP – Simple Object Access Protocol

WS-BPEL - Web Services Business Process Execution Language

IDE – Integrated Development Environment

1.4 References

- *Project Vision, version 1, 2011*
- *Project Feasibility Document, version 1, 2011*
- *Project Development Case, version 1, 2011*
- *Project Schedule, 2011*
- *Project Requirement Specification, version 1, 2012*

1.5 Overview

This document describes organization of development process from the point of achieving the highest software quality.

- The section **Quality Objectives** describes product quality requirements.

- The section **Management** describes the organizational structure of the quality assurance entities, responsibilities and communication between team members in order to facilitate quality assurance.

- The section **Documentation** gives the list of documents which are design to motivate the product to the good quality standards.

- The section **Standards and Guidelines** describes reputed standards and guidelines which will be used in the product development process.

- The section **Metrics** defines the metrics that will be measured at certain control points during product development and that will allow controlling the development process.

- The section **Review and Audit Plan** describes in detail schedule, resources engaged, methods and processes that will be used for project Review and Audit.

- The section **Evaluation and Test** describes product evaluation plan, and covers the techniques, criteria, metrics, and procedures of evaluation, which include walkthroughs, inspections, and reviews.

- The section **Problem Resolution and Corrective Action** describes the principles of reporting, analysis, and problem solving during the project.

- The section **Tools, Techniques, and Methodologies** describes Tools, Techniques, and Methodologies used in the project.

- The section **Supplier Controls** gives some background on accounting information that will be given to the client during the project.

- The section **Quality Records** describes the process of quality issues tracking.

- The section **Risk Management** and Risk Management Plan gives the information on how to manage risks associated with the project. This section defines risk management tasks that will be carried out, describes the responsibilities assigned and all additional resources required for the effective risk management.

2. Quality Objectives

The product must comply with all of the requirements described in Software Requirements Specification (SRS). Product's conformity to Software Requirements Specification (SRS) will be checked through all specific requirements. Upon project coordinators' verification that all of the tests have been satisfactory passed, the product is considered to be of satisfactory quality.

3. Management

3.1 Organization

Role	Responsibility
Project Manager	Define priorities, allocate resources, communication with project coordinators and keeping the project focusing on main goal. Also responsible for establishing set of practices that ensures integrity and quality of artifacts.
Developer	Responsible for developing and testing the GSUN system with the project adopted standards. Responsible for testing the system with suitable test components.
Project Coordinator	Keep track of the project progress and responsible for evaluating the development of the project time to time and assisting developer to the best. Also responsible for testing the project for qualities and standards.
Tester	The Tester is responsible for test execution, including test set-up and test run, evaluation of test run and error recovery, defect logging and test results recording.

3.2 Tasks and Responsibilities

GSUN project is and individual project, so all tests should be carried out by the implementer. Necessary feedback and guidance will be provided by the project coordinators.

4. Documentation

Following are documents that are going to produce throughout this project which will ensure that the software requirement that is produced satisfies the requirements.

Software Requirements Specification (SRS)

Software Requirements Specification (SRS) comprises complete software requirements for the whole system and its parts. When using use-case modeling, the SRS describes use cases of the model and applicable Supplementary Specifications.

Weekly reports

Weekly reports are to interpret work done on each week and to check the project is performing well within the given time constrains.

5. Standards and Guidelines

Product development is performed on the basis of the following standards;

- **SOAP** – This is the message interchanging standard that supports communication between web services. It defines the essential and optional components of messages passed between services

- **WSDL** – This standard defines the way in which service providers should define the interface to these services. Therefore it allows the interface of a service and its bindings to be defined in a standard way

- **WS-BPEL** – This is the standard for a workflow language that is used to define process programs involving several different services.

6. Metrics

Metric	Purpose	Perspectives
Progress	Iteration Planning Completeness	Source Lines of code
Quality	Iteration Planning Release criterion	Number of errors Defect Density
Maturity	Robustness for use	Test hours/failure Types of failure

7. Review and Audit Plan

7.1 Review and Audit Tasks

- **Requirements Review** – Concerned mainly with the requirements in Software Requirements Specification (SRS). Perform in the middle of the Elaboration phase.

- **Architecture Review** – Concerned mainly with the architecture in the System Architecture Design and perform at the end of Elaboration phase.

- **Code Review** – Source code verification

7.2 Organization and Responsibilities

- **Requirements Review** – Since GSUN is an individual project a single entity has to analyze the Software Requirement Specification and keep the revision history.

- **Architecture Review** – Same entity has the responsibility of analyze the Architecture analyze and keep track of the changes made.

- **Code Review** – Developer is responsible for creation of review as a text file.

8.   Problem Resolution and Corrective Action

Requirements Review – Initially developed by the developer of GSUN and goes through the analysis of project coordinators. Conflicting situations will be solved through discussions.

Architecture Review – This is also initially develop by the GSUN implementer and inspected by the project coordinators. Conflicting situations will be solved through discussions.

Code Review – Developer initially make a text based file for this and will be analyze by project coordinators. Any conflicting scenarios will be solved through negotiations.

9.   Tools, Techniques, and Methodologies

9.1   Tools

Debugging facility in IDE will be used.

9.2   Techniques

- **Blackbox Testing**

Blackbox Testing is done on the functionalities mentioned in the SRS regardless of examining the internal process,

- **Whitebox Testing**

Whitebox Testing requires the knowledge about the code, designs or source materials to implement and execute tests.

- **Ad-Hoc Testing**

This testing will use previously unplanned and unstructured activities for the testing. This testing method provides the test methodology with a degree of variability.

9.3   Methodology

RUP methodology is used.

The Rational Unified Process (RUP) provides a disciplined based approach to assign tasks and responsibilities. Its goal is to produce high quality software that meets the end user requirements, time constrains and budgets.

10.   Supplier Controls

During Implementation phase seven weekly reports and a mid- demonstration is planned to be presented.

11. Quality Records

All the defects and bugs during testing phase are recorded according to the Defect Tracking Guidelines, in a document.

During implementation phase, IDE debugging tools are used to track bugs.

12. Risk Management

For Risk Management purpose a Risk List is created by the Project manager initially. It should support during the whole life cycle of the project. Developers and all participants should contribute to maintenance of the Risk List.