Software Requirements Specification

for

Waste, Recycle Feedback System

Version 1.0 approved

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Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Date** | **Reason For Changes** | **Version** |
| WRFS | 12/9/18 | Update Requirement and Add Use Case | 1.1 |
|  |  |  |  |

# Introduction

## Purpose

**Waste Recycle Feedback System** is to be built for making Waste Management system more organized and to ensure waste recycling. It is a subsystem of **Smart City** what is focused on building more livable city.

## Document Conventions

In this document, we divided the document in parts. Each part has their own sections. Then, every part is divided into some subsections. The sections are highlighted using bold letters. Finally, every sections and subsections are described.

## Intended Audience and Reading Suggestions

This report is intended for developers and project manager of **Waste Recycle Feedback System** project. The rest of the report contains detailed discussion over **Requirements, System Features** and **Nonfunctional Requirements.** Readers are suggested to read through the report from **Overall Description** and then sequentially discussion about **Interface Requirements, System Features** and **Other Requirements** section as they are arranged.

## Product Scope

The purpose of **Waste Recycle Feedback System** is to update current system of waste management and ensure proper management for recycling recyclable watses.

## References

* <https://www.tutorialspoint.com/software_engineering/software_requirements.htm>

# Overall Description

## Product Perspective

**Waste Recycle Feedback System** is a subsystem of **Smart City** project which is to be implemented to ensure proper waste management and enabling feedback option with waste management. The existing process of collecting and recycling wastes is not much ecofriendly and merely economically efficient. Often dumping wastes to a suitable place is not much easy for city dwellers. **Waste Recycle Feedback System** is a project for finding solution of this problem.

## Product Functions

Main functionality of the project:

* Registration of each house.
* Feedback system from city dwellers to City Corporation.
* Emergency calling system if necessary.
* Separate collection of recyclable wastes (like glass, plastic, metal etc.) and manage them.
* Online payment system for this service.

## User Classes and Characteristics

There are three types of users in this system. Such as:

* City corporation authority (System Admin).
* City Dwellers.
* Wastes Collectors.

These three types of users are related to some different kind of activities. Like

City Corporation Authority:

* Activation or Denial of user’s request to be registered for this service.
* Allocating waste collectors for different part of city.
* Receiving feedbacks and analyzing monthly review on service.
* Responding to emergency calls from users.
* Collecting money according to individual id.
* Collecting different types of waste materials (like recyclable or non-recyclable) and manage them properly.

City Dwellers:

* Requesting for registration on the service.
* Online monthly payment system.
* Feedback and monthly review system.
* Emergency calling feature.

Waste Collectors:

* Collect wastes from registered houses daily.
* Responding to emergency calls.

## Operating Environment

Operating Environment for **Waste Management Feedback System** is listed as below:

Operating System : Windows.

Database : MySql

Platform :VB.net and PHP

## Design and Implementation Constraints

* Our working procedure will be completed on web.
* There will be available options for User as Client, User as Service provider who will provide software and Administrator who will control all behavior.
* There will be a central database where every details will be stored dynamically.
* We will use Html, CSS, Javascript for making our website interfaces on the Client end and PHP for server end workings.

## User Documentation

To use the product properly, there will be various components to help the user. Some of them are:

* User Manual: Will be attached
* On-Line Help: There will be a report option and an FAQ in the product.
* Tutorial Link: A tutorial will be uploaded for the user in the website.

## Assumptions and Dependencies

Assumptions:

* Every House has a unique holding number.
* There is a service existing for collecting wastes.
* Users have to pay separately for their waste management service.

# External Interface Requirements

## User Interfaces

### Front-end Software:

**VB.net** will be used to build up front end interface to interact with users.

### Back-end Software:

**SQL** will be used as backend software.

## Hardware Interfaces

<Describe the logical and physical characteristics of each interface between the software product and the hardware components of the system. This may include the supported device types, the nature of the data and control interactions between the software and the hardware, and communication protocols to be used.>

## Software Interfaces

Following software will be used for development of this project:

|  |  |
| --- | --- |
| **Software Used** | **Description** |
| Operating System | We have chosen Windows operating system for its best support and user-friendliness. |
| Database | MySql Database is used |
|  |  |

## Communications Interfaces

<Describe the requirements associated with any communications functions required by this product, including e-mail, web browser, network server communications protocols, electronic forms, and so on. Define any pertinent message formatting. Identify any communication standards that will be used, such as FTP or HTTP. Specify any communication security or encryption issues, data transfer rates, and synchronization mechanisms.>

# System Features

## House registration.

### Description and Priority

Every house willing to receive this service will request for to be registered by submitting a form addressing their address.

### Stimulus/Response Sequences

The user will fill up a form containing detailed information on Name, House Address, Phone number and Email address. He will submit the form and he will be notified through phone number or e mail whether his requested is accepted or denied.

### Functional Requirements

The Input form will not be submitted and user will get warning if the form contain invalid input. User will be notified if the request is submitted successfully.

## Feedback System

### Description and Priority

Users registered to the service will be able to give feedback and review about the service.

### Stimulus/Response Sequence

Feedback Submission form will carry feedback to the server including user id and timestamp the Feedback.

### Functional Requirement

Feedback Submission form will make request to server including Feedback Text and it will get User id from session of the user. The feedback and user id will be saved on database and it will be timestamped.

## Emergency Calling

### Description and Priority

On emergency need user will be able to call for service mentioning place.

### Stimulus/Response Sequence

An emergency calling page containing description of the problem and occurring place will be introduced. He can choose his default locality or any other address as place.

### Functional Requirement

Request will be directed to server containing the detail of emergency situation as well as the place submitted by the user. Call will be saved to database and timestamped.

## Online payment system

### Description and Priority

Users will be able to pay for their service through online or mobile banking easily.

### Stimulus/Response Sequence

User will pay through online payment system at the end of the month.

### Functional Requirements

Users will be able to pay for their service through online or mobile banking easily by using their unique id and preferred payment method.

## Use Case Description

### Login Form

|  |  |  |
| --- | --- | --- |
| **Uc\_no\_1** | **Use case name:** | Access Login Form |
| **Brief Description:** | Form is used to login for different kind of user Such as Admin, Waste Collector and City Dwellers. |
| **Priority** | Essential |
| **Trigger** | User select the user link on the WRFS home page |
| **Precondition** | User is connected to the internet on the WRFS homepage |
| **Basic path** | 1.The smart city management server sends the user to the WRFS server  2. The WRFS server presents the User with WRFS Login Page. |
| **Alternate path** | N/A |
| **Post condition** | If User credential is ok , He will be redirected to home page. |
| **Exception path** | If there is a connection failure, the  WRFS Server returns to the wait state |

### Accessing Home

|  |  |  |
| --- | --- | --- |
| **Uc\_no\_2** | **Use case name:** | Access home page |
| **Brief Description:** | The web server is waiting on user to connect |
| **Priority** | Essential |
| **Trigger** | User select the user link on the WRFS home page |
| **Precondition** | User is connected to the internet on the WRFS homepage |
| **Basic path** | 1.The smart city management server sends the user to the WRFS server  2. The WRFS server presents the User with WRFS homepage. |
| **Alternate path** | 1. Login Page redirects here after successful login. |
| **Post condition** | User is on the WRFS homepage. |
| **Exception path** | If there is a connection failure, the  WRFS Server returns to the wait state |
|  |  |

### Emergency Calling

|  |  |  |
| --- | --- | --- |
| **Uc\_no\_3** | **Use case name:** | Access Emergency Calling page |
| **Brief Description:** | User Submit a Description and call for emergency issue. |
| **Priority** | Essential |
| **Trigger** | User select the ‘Emergency Calling’ link on the WRFS home page |
| **Precondition** | User is connected to the internet on the WRFS homepage |
| **Basic path** | 1.The smart city management server sends the user to the WRFS server  2. The WRFS server presents the User with WRFS homepage.  3. User Click on the link of Emergency Calling. |
| **Alternate path** | N/A |
| **Post condition** | If Calling request is successful, user is notified and Redirected to Homepage.  Else user will be shown respective error. |
| **Exception path** | If there is a connection failure, the  WRFS Server returns to the wait state |

### Feedback System

|  |  |  |
| --- | --- | --- |
| **Uc\_no\_4** | **Use case name:** | Access Feedback system page |
| **Brief Description:** | The user can give feedback to the authority. |
| **Priority** | Essential |
| **Trigger** | User select the user link on the WRFS home page |
| **Precondition** | User is signed in WRFS system |
| **Basic path** | 1.The smart city management server sends the user to the WRFS server  2. The WRFS server presents the User with WRFS homepage. |
| **Alternate path** | N/A |
| **Post condition** | User is on the WRFS homepage. |
| **Exception path** | If there is a connection failure, the  WRFS Server returns to the wait state |

### Registration Request Approve / Refuse

|  |  |  |
| --- | --- | --- |
| **Uc\_no\_5** | **Use case name:** | Access Registration request page |
| **Brief Description:** | The city dwellers send a request for registration. The authority can accept or refuse the request. |
| **Priority** | Essential |
| **Trigger** | Admin select the Review Request link on the WRFS Admin home page |
| **Precondition** | User is signed in WRFS admin system |
| **Basic path** | 1.The smart city management server sends the user to the WRFS server  2. The WRFS server presents the User with WRFS homepage. |
| **Alternate path** | N/A |
| **Post condition** | User is on the WRFS homepage. |
| **Exception path** | If there is a connection failure, the  WRFS Server returns to the wait state |

### Payment History

|  |  |  |
| --- | --- | --- |
| **Uc\_no\_6** | **Use case name:** | Access Payment page |
| **Brief Description:** | The city dwellers can see the payment history. |
| **Priority** | Essential |
| **Trigger** | User select the user link on the WRFS home page |
| **Precondition** | User is signed in WRFS admin system |
| **Basic path** | 1.The smart city management server sends the user to the WRFS server  2. The WRFS server presents the User with WRFS homepage. |
| **Alternate path** | N/A |
| **Post condition** | User is on the WRFS homepage. |
| **Exception path** | If there is a connection failure, the  WRFS Server returns to the wait state |

# Other Nonfunctional Requirements

## Performance Requirements

Time : The program need to be fast. A user should be able to get their desired result as fast as possible.

Location Detection : The program should detect the location properly. Also, it must give the proper direction to the user. So that, they can easily

## Safety Requirements

As online payment system is being used, users login credential must be secured and payment credential should also be kept secret properly

## Security Requirements

This product will be

* Adaptable : One can easily adapt this program.
* Available : It will be available for all user.
* Maintainability : This program will be easily maintainable
* Reliability : This program will be reliable.
* Usability : This program will be usable to all users.