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User Requirement Document

HELP CENTER STATUS TOOL

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Road repairs tracking system

Version 1.1

Requirement Document

Version History

Version no	***Date***	***Changed by***	***Changes made***
V1.0	2023-10-20	Chandbasha,naveen,aparna,prathyusha,bhavyasree	Draft Report
V1.1	2023-10-27	Chandbasha,naveen,aparna,prathyusha,bhavyasree	Added use cases, use case specifications
V1.1	2023-11-04	Chandbasha,naveen,aparna,prathyusha,bhavyasree	Updated use case specifications

Table of Contents

Introduction:

This document has the requirements of road repairs tracking system. The road repairs tracking system is utilized by the Public Works Department of a large city to automate and streamline various bookkeeping activities associated with road repair tasks.

Purpose:

The User Requirement Document for the Road Repairs Tracking System (RRTS) outlines the needs, expectations, and functionalities desired by the users involved in the road repair processes within the Public Works Department of the Corporation. This document serves as a guide for the development team to understand and fulfill the specific requirements of the stakeholders.

Intended Audience:

The intended audience will be the customers who want to get online help through public work departments.

Stakeholders:

Clients : Residents,Mayor,government officials,**Citizens' Advocacy Groups**

Users :Clerks,Supervisiors,**City Corporation Administrator,Public Works Department,City Planners**

Product Vision

Vision Statement:

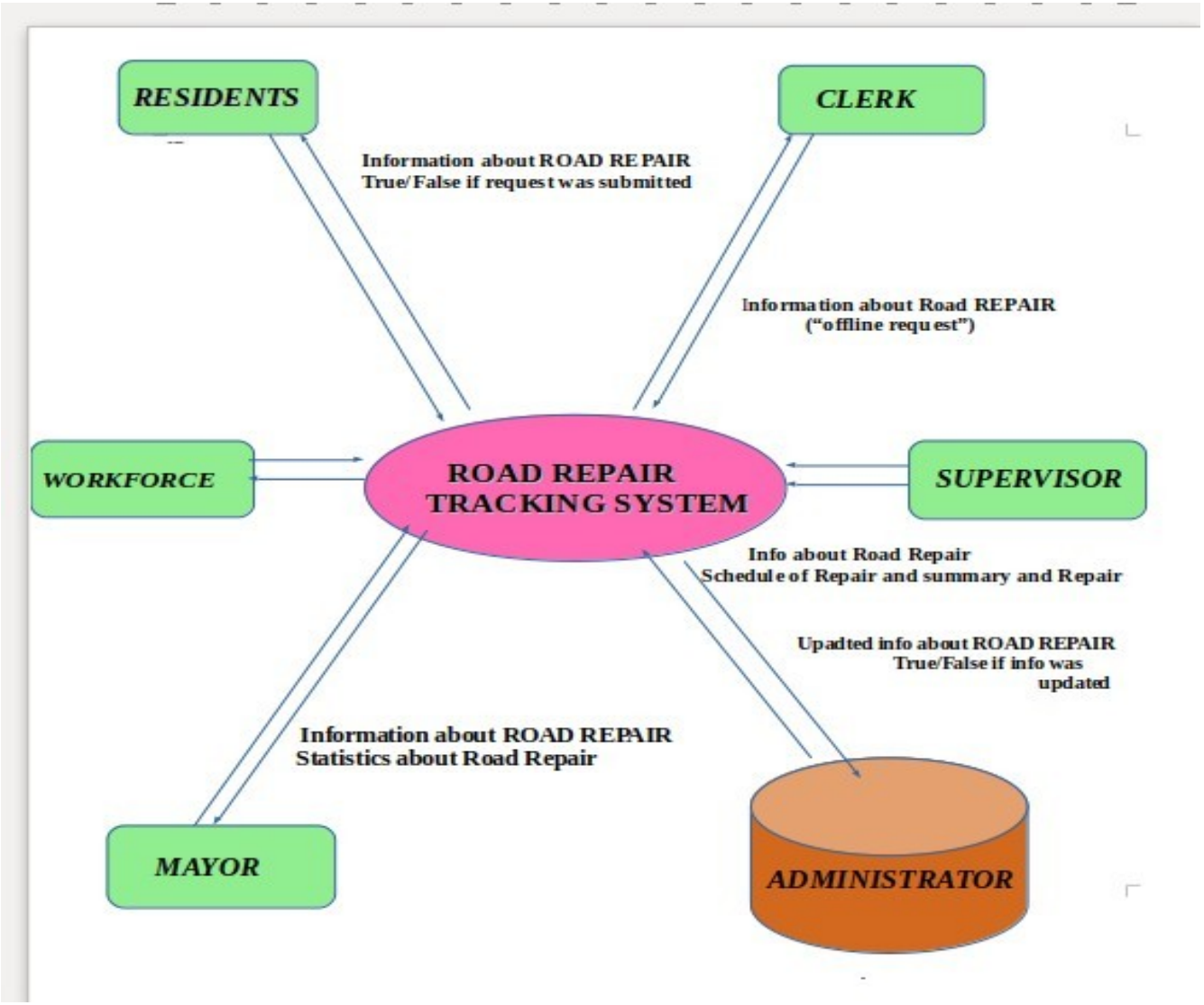
The product vision is to develop a RRTS Tool, which is user friendly and easily accessible. This RRTS Tool helps to provide online solution for the given problem.

Technologies:

Core java,jsp,servlett,jdbc

System in Context:

- The Road Repairs Tracking System (RRTS) interfaces with the Public Works Department of the Corporation, managing repair requests from residents and facilitating efficient allocation of resources.
- Integrated with city branch offices, RRTS generates area-wise repair lists daily for supervisors to assess road conditions and prioritize repairs.
- RRTS dynamically schedules repair projects based on severity, locality, and resource availability, ensuring optimal utilization of manpower, machinery, and raw materials.
- The system allows the city corporation administrator to update resource availability data, triggering automatic rescheduling when necessary.
- RRTS provides the Mayor with comprehensive road repair statistics, aiding in decision-making regarding the allocation of resources and prioritization of repairs.


RESIDENTS
CLERK
Information about ROAD REPAIR
True/False if request was submitted
Information about Road REPAIR
("offline request")
WORKFORCE
ROAD REPAIR
TRACKING SYSTEM
SUPERVISOR
Info about Road Repair
Schedule of Repair and summary and Repair
Upadted info about ROAD REPAIR
True/False if info was
updated
Information about ROAD REPAIR
Statistics about Road Repair
MAYOR
ADMINISTRATOR

User Characteristics:

The Users are typical computer users.

The users are familiar with using internet

Constraints:

N/A

System-Wide Requirements (Received):

Actors:

The Road Repairs Tracking System (RRTS) involves several key actors within its operational framework. Residents initiate repair requests, clerks input and manage complaints, supervisors assess road conditions and prioritize repairs, the administrator oversees resource management, and the Mayor accesses comprehensive repair statistics

Events:

RRTS Tool is a multi-user system which provides the help to users.

The most critical events are

- Residents submit repair requests via phone or written complaints.

- Clerks enter repair requests into the system for processing.

- System generates area-wise lists of fresh complaints for supervisors every morning.

- Supervisors visit assigned areas, examine complaints, and assess road conditions.

- Supervisors prioritize repair tasks based on severity and locality type (e.g., commercial, busy, deserted).

- Supervisors estimate raw materials, machine types, and personnel required for each repair task.

- The system schedules repairs based on priority, considering resource availability.

- Administrator manages raw material and machine inventory.

- Updates resource availability data.

- Any changes to resource availability trigger a rescheduling of repair projects.

- The Mayor can request various road repair statistics.

- Comprehensive statistics on completed repairs, outstanding work, and resource utilization are generated regularly.

- Administrator can update resource availability data in response to changes (e.g., machine breakdown).

- Supervisors use schedule reports to direct repair work effectively.

The below table provides a set of user visible events that define the functionalities that are in

	Actor	**Action**	**Object**	**Frequency**	**Arrival Pattern**	**Response**
1.	Clerk	Enters Complaints	Repair Requests	Daily	Morning	Record complaints in the computer system.

2.	Clerk	Prints Complaint List	Area-wise Complaint List	Daily	Morning	Generate and print the list for supervisors.
3.	Supervisor	Visits Assigned Areas	Complaint ,Road Conditions	Regularly	Morning	Inspects complaints,evaluates road conditions,and prioritizes repair work.
4.	Supervisor	Estimates Resource Needs	Raw Materials, Machines, Personnel	As needed	As needed	Determines required resources for repair tasks.
5.	Supervisor	Receives Schedule Report	Schedule Report	As needed	As needed	Receives the schedule report for directing repair work.
6.	Administrator	Manages Resource Inventory	Raw Materials,Machines,Personnel	As needed	As needed	Updates and maintains data on available resources.
7.	Administrator	Makes Resource Availability Changes	Raw Materials,Machines,Personnel	As needed	As needed	Adjusts resource availability, triggering rescheduling when needed.

8.	Mayor	Requests Road Repair Statistcs	Repair Statistics	As needed	As needed	Requests various road repair statistics for decision-making.
9.	Determine Priority	Severity, Locality	After inspection	As needed	As needed	Set Priority for Repair Work
10.	Use Schedule Report	Repair Schedule	As needed	As needed	As needed	Direct Repair Work Based on Schedule
11.	Open Web Page	Arrival	As needed	As needed	As needed	Access System Dashboard
12.	Enter Manpower and	Manpower, Machines	Raw Materials,Machines,Perso	As needed	As needed	Update Data on Available Resources
13.	Request Repair Statistics	Repair Statistics	After inspection	After inspection	As needed	Receive Comprehensive Statistics on Road Repairs
14.	Estimate Requirements	Raw Material, Machines,	After inspection	As needed	As needed	Determine Resource Needs
15.	Visit Assigned Areas	Road Conditions, Complaints	As needed based on complaints	As needed	As needed	Inspect Roads, Evaluate Severity

Functional Requirements:

Use case overview:

	Use-Case ID:	Use-Case Name:	Priority	Stability	Verifiability
1.	UC_RES_01	Raise Repair Request	High	Stable	Verifiable
2.	UC_RES_02	Provide Complaint Details	High	Stable	Verifiable
3.	UC_CLR_01	Enter Complaints into System	High	Stable	Verifiable
4.	UC_SUP_01	Receive Area-Wise Complaint List	High	Stable	Verifiable
5.	UC_SUP_02	Assess Complaints and Road Conditions	High	stable	Verifiable
6.	UC_SUP_03	Prioritize Repair Work	High	Stable	Verifiable
7.	UC_SUP_04	Estimate Resource Requirements	High	Stable	Verifiable
8.	UC_SUP_05	Direct Repair Work based on Schedule Report	High	Stable	Verifiable
9.	UC_ADM_01	Manage Machine Inventory	High	Stable	Verifiable
10.	UC_ADM_03	Change Manpower and Machine Data	High	Stable	Verifiable

Use Case Diagram: -

Use Case Specifications:

Use Case 1: Raise Repair Request

Use-Case ID: UC- HCST -RRR:	Use-case Name: **Post Request**
Description:	The user posts the help request to resolve the problem.
Pre-conditions	1. User must view the help center website. 2. The user must have at least one problem to post.
Success guarantee **(post-conditions)**	After posting the help request, user gets an immediate email which has a unique incident id.
Frequency of use:	High
Main success scenario **(or basic flow)**	1. User accesses the Help Center website homepage. 2. The User selects Post request tab. 3. He or She gets a form with different fields and he/she enters the required (correct) details including the problem. 4. In last step, the user clicks on submit button to post the help request.
Extensions (or alternate flows)	1. If user doesn't fill required details or entered invalid details like product id or product category. a. The system prompts the user to fill/check the details again.

Frequency of occurrence	Very high

2. Use Case 2: Enter Complaints into System

Case ID: UC-HCST-ECIS:	Use-case Name: Enter Complaints into System
Description:	Clerks enter repair requests and complaints into the computer system
Pre-conditions	1. Clerk is logged into the system.
Success guarantee (post-conditions)	Complaints and repair requests are successfully entered into the system.
Frequency of use:	High
Main success scenario (or basic flow)	1. Clerk receives repair request details 2. Clerk enters details into the system. 3. Clerk enters details into the system.
Extensions (or alternate flows)	1. If user enters invalid incident id. a. System asks the user to enter the valid incident id.
Frequency of occurrence	High

Use Case 3: Receive Area-Wise Complaint List

-Case ID: UC-HCST-RACL:	Use-case Name:Receive Area-Wise Complaint List
Description:	Supervisors receive an area-wise list of fresh complaints every morning.
Pre-conditions	It's the morning, and the system has generated the list.
Success guarantee **(post-conditions)**	Supervisor receives the list for examination.
Frequency of use:	High
Main success scenario **(or basic flow)**	1. System generates area-wise list. 2. List is printed for respective supervisors. 3. Gets view all request link, when he enters valid username and password. 4. The system displays all requests to the administrator.
Frequency of occurrence	High

Use Case 4: Assess Complaints and Road Conditions

Use-Case ID: UC-ACRC	Use-case Name: Assess Complaints and Road Conditions
Description:	Supervisors visit assigned areas to examine complaints and assess road conditions.
Pre-conditions	Supervisor has received the area-wise list.
Success guarantee **(post-conditions)**	Supervisor completes assessment for assigned areas.
Frequency of use:	Daily
Main success scenario **(or basic flow)**	1. Supervisor visits assigned area. 2. Examines complaints and studies road conditions. 3. Clicks on assign help request link and enters the support person id and incident id. 4. Submits the form and gets a “successful assign the help request message” from the system.

Frequency of occurrence	High

Use Case 5: Prioritize Repair Work

Case ID : UC-PRW	Use-case Name: Prioritize Repair Work
Description:	Supervisor determines the priority for repair work based on severity and locality.
Pre-conditions	Supervisor has completed assessments.
Success guarantee **(post-conditions)**	Priority for repair work is established.
Frequency of use:	Daily
Main success scenario **(or basic flow)**	Supervisor evaluates severity and locality. 1. Determines priority for repair work. Supervisor evaluates severity and locality. 1. Determines priority for repair work. Supervisor evaluates severity and locality. 1. Determines priority for repair work.

Extensions (or alternate flows)	The Administrator/support person would be prompted with an error message if he provides wrong request Id's (if that id is not in database).
Frequency of occurrence	Very high

Use Case 6: Estimate Resource Requirements

Use-Case ID : UC-ERR	Use-case Name: Estimate Resource Requirements
Description:	Supervisor estimates raw material, machinery, and personnel requirements
Pre-conditions	Supervisor estimates raw material, machinery, and personnel requirements
Success guarantee (post-conditions)	Priority for repair work is established.Priority for repair work is established.
Frequency of use:	High
Main success scenario (or basic flow)	Supervisor assesses raw material needs. 1. Estimates machine and personnel requirements. After clicking on submit button he will get a page which have the details of request id In that page he will check the status of help request

Extensions (or alternate flows)	The user would be prompted with an error message if he provides wrong request Id's (if that id is not in database).
Frequency of occurrence	Very high

Use Case 7: Schedule Road Repair

Use-Case ID : UC-SRR	Use-case Name: Schedule Road Repair
Description:	The Administrator manages the Search Request
Pre-conditions	Resource requirements are estimated.
Success guarantee (post-conditions)	System schedules repairs based on priority. 1. Considers availability of resources.
Frequency of use:	High

Main success scenario **(or basic flow)**	1.After successful login of Administrator he will get his home page 2. in that page he must select the search request option 3. after that he will get a page which ask for user incident id/support person id Administrator enter user incident id/support person id and options (opened or closed) If the search terms found in url system displays the particular user/support person help request
Extensions (or alternate flows)	The user would be prompted with an error message if he provides wrong incident Id's or support personnel ids (if that id is not in database).
Frequency of occurrence	Very high

Use Case 8: Manage Raw Material Inventory

Case ID : UC-MRMI	Use-case Name: Manage Raw Material Inventory
Description:	Raw material inventory is successfully managed.
Pre-conditions	City corporation administrator manages raw material inventory.
Success guarantee **(post-conditions)**	Administrator is logged into the system.

Frequency of use:	Low
Main success scenario **(or basic flow)**	1. Raw material inventory is successfully managed. 2.Raw material inventory is successfully managed. 3.Raw material inventory is successfully managed. 4. this information will be send to particular support person
Extensions (or alternate flows)	This scenario is depends on administrator thinking, if he is not provide information nothing will happen.
Frequency of occurrence	As needed

Use Case 9: Manage Machine Inventory

Case ID : UC-MMI	Use-case Name:Manage Machine Inventory
Description:	Administrator is logged into the system.
Pre-conditions	Machine inventory is successfully managed.

Success guarantee (post-conditions)	Support person get the particular help request and view the help request status
Frequency of use:	High
Main success scenario (or basic flow)	After successfully login of support person, he select the appropriate link After clicking on that link he will get a page, in that page he need to enter request id and click on submit button After click on submit button he will get a page which have the details of request id In that page he will check the status of help request
Extensions (or alternate flows)	The support person would be prompted with an error message if he provides wrong request Id's (if that id is not in database).
Frequency of occurrence	Very high

Use Case 10: Change Manpower and Machine Data

Use-Case ID : UC-CMMD	Use-case Name: Change Manpower and Machine Data
Description:	City corporation administrator changes data for available manpower and machines.

Pre-conditions	
Success guarantee (post-conditions)	Administrator is logged into the system.
Frequency of use:	High
Main success scenario (or basic flow)	After successfully login of support person, he select the appropriate link After clicking on that link he will get a page, in that page he has all help requests which he assigned by administrator
Extensions (or alternate flows)	Administrator modifies available manpower and machine data.Administrator modifies available manpower and machine data.
Frequency of occurrence	Very high

Non-Functional Requirements:

Reliability:

The system should have high availability, ensuring minimal downtime for users.

Data integrity must be maintained to prevent errors in scheduling and reporting.

Usability:

The user interface should be intuitive and user-friendly for all types of users, including clerks, supervisors, administrators, and the mayor.

Training materials and documentation should be provided for users at all levels.

Availability:

The system should log all user activities, including modifications to data by administrators, for auditing purposes.

- Audit logs should be accessible only to authorized personnel

Accessibility:

This tool support multi user accessing. Any user can access the system from different places to use the tool

Performance:

The system should be capable of handling a large volume of repair requests and data processing efficiently.

Response times for generating reports should be within acceptable limits.

Security:

The system should be scalable to accommodate future growth in the number of repair requests, users, and data.

Platform Compatibility:

This tool has to work on any kind of operating system without modifying it.

Compliance:

- The system should comply with relevant data protection and privacy regulations governing the handling of resident data and city statistics.