Road Repair and Tracking System

1. Introduction

1.1 Purpose

The purpose of this document is to provide a detailed description of the Road Repair and Tracking System. It will explain the purpose and features of the system, what the interfaces of the system will do, the constraints under which it must operate and how the system will react to external stimuli.

1.2 Scope

The domain of the system is to be used in Public Works Department (PWD) of the Corporation of a large city. It shall be used by residents to raise complaints and ultimate resolving of the complaints by the department undergoing various stages of work allocation.

1.3 Definitions and Abbreviations

1.4 References

Internet, Instructor, TA s.

1.5 Overview

The next chapter, Overall Description section, of this document gives an overview of the functionality of the product. It describes the informal requirements and is used to establish a context for the technical requirements specification in the next chapter.

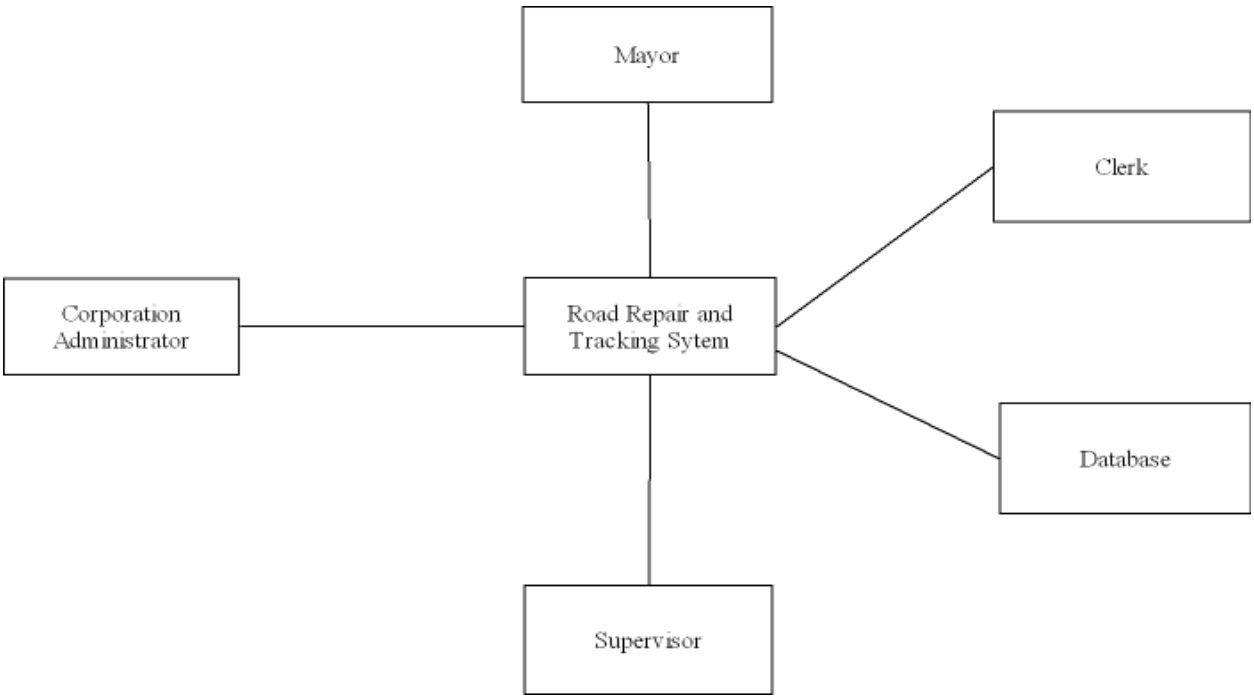
The third chapter, Requirements Specification section, of this document is written primarily for the developers and describes in technical terms the details of the functionality of the product.

Both sections of the document describe the same software product in its entirety, but are intended for the different audiences and thus use different languages.

2. Overall Description

2.1 Product Perspective

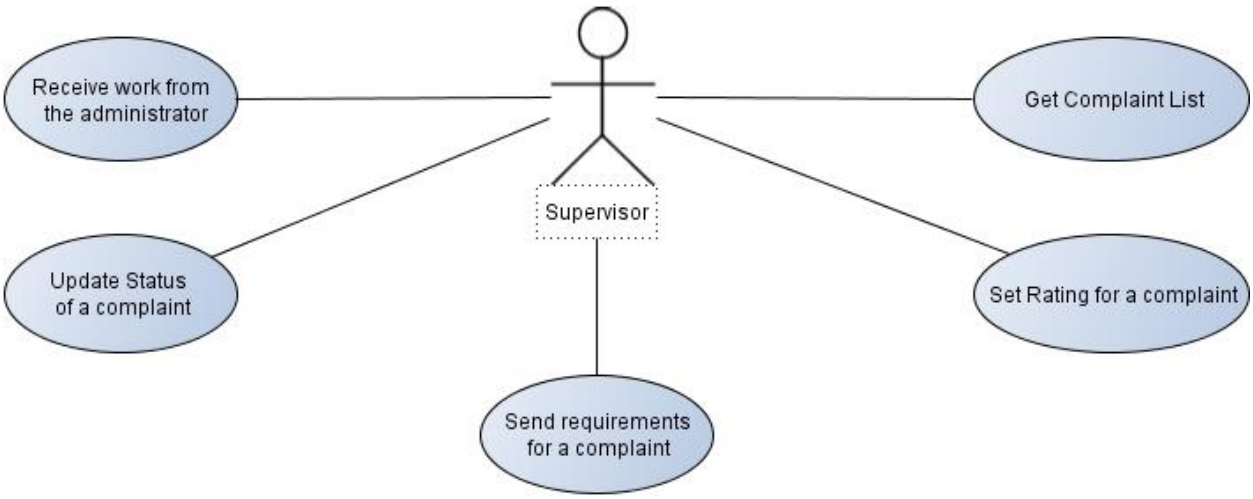
The system will be functional in the Corporation, which will have other systems that will interact with this system, so we need interfaces between the systems.



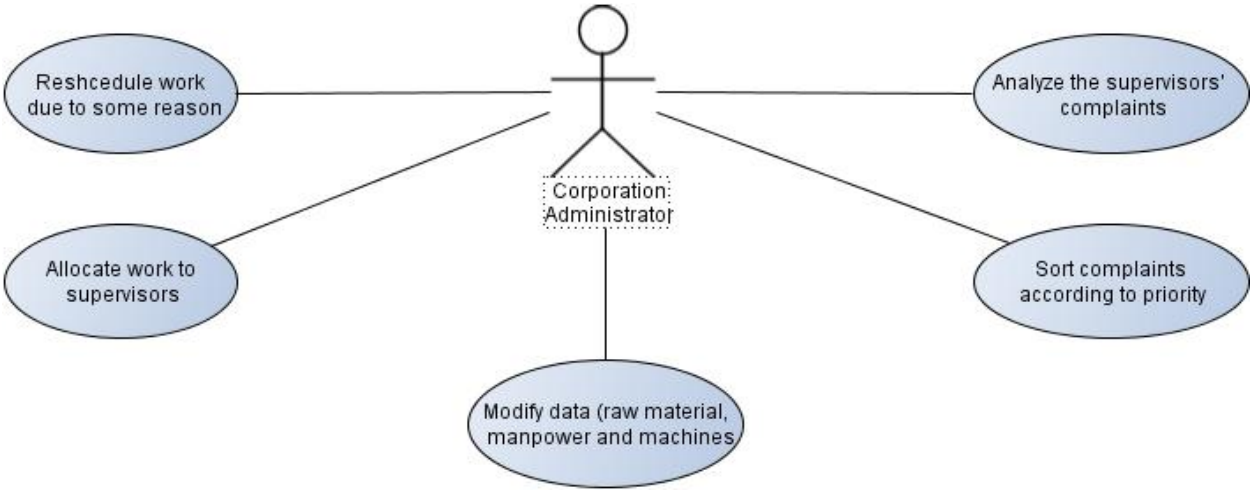
2.2 Product Functions

2.2.1 The system shall be able to register complaints which are entered into the system by a clerk.

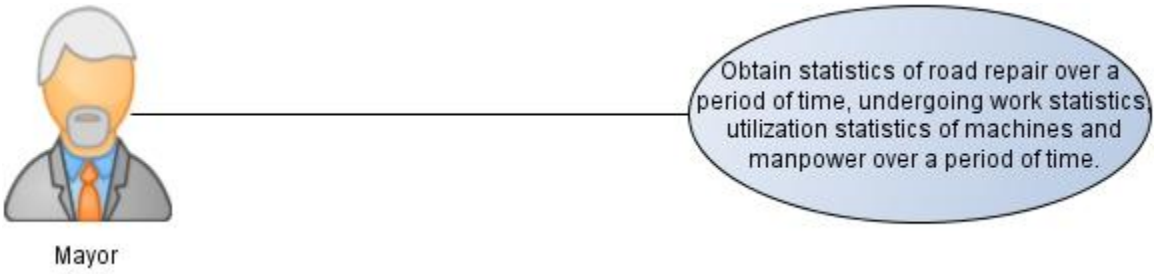
2.2.2 The system shall have the supervisor to perform functions of getting the complaint list, set rating for a particular complaint, send requirements for a particular complaint to the corporation administrator, update status of a particular complaint and receive work from the corporation administrator.



2.2.3 The system empowers the corporation administrator to analyze the supervisors' complaints, sort them in order of their priority, modify the data (machines, manpower and raw materials), allocate work to the supervisors and reschedule work.



2.2.4 The system gives the mayor of the city to obtain the various statistics of the work carried out over a period of time. He can request various road repair statistics such as the number and type of repairs carried out over a period of time and the repair work outstanding at any point of time and the utilization statistics of the repair manpower and machine over any period of time.



2.3 User Characteristics

The clerk, supervisor, corporation administrator and the city mayor need to be computer literate and be able to use the basic functionality of the system.

2.4 Constraints

The system must run in any operating system environment.

2.5 Assumptions and Dependencies

3. Specific Requirements

3.1 External Interface Requirement

3.1.1 User Interfaces

It interfaces through icons and wizards.

3.1.2 Hardware Interfaces

There must be a computer pc to link to the Road Repair and Tracking System.

3.1.3 Software Interfaces

3.1.4 Communication Interfaces

We must use user interfaces rather than command lines.

3.2 Functional Requirements

3.2.1 Login

Input : Login as Clerk, Supervisor, Corporation Administrator or City Mayor.

Output : Take the user to the specific area of system for further execution of work.

3.2.2 Clerk

3.2.2.1 **Complaint**

Input : Enter the complaint delivered to the clerk in written or over phone.

Output : Write the complaint to a file.

3.2.2.2 **Print List**

Print the list for the supervisors of the various areas, for them to go to the specific areas and examine the severity of the road condition.

3.2.3 Supervisor

3.2.3.1 Get complaint list that is generated by the clerk for the supervisor.

3.2.3.2 **Rating**

Input : Set Rating for a particular complaint based on the basis of the severity of the repair work and the location of the repair.

Output : The rating for a complaint is written to a file against the complaint and is needed to determine the priority of the complaint.

3.2.3.3 **Requirements**

Input : The requirements for the repair work(raw material, manpower and machines and also their types).

Output : All this data is written to a file for to be used by the corporation administrator.

3.2.3.4 **Receive Work**

The supervisor is allocated work by the administrator according to the various constraints of priority and availability of machines, manpower and raw materials.

3.2.3.5 **Status**

Input : Enter the status of the undergoing work, whether over or still undergoing for to be used by the administrator.

Output : The status is written to a file for to be accessed by the administrator.

3.2.4 City Administrator

3.2.4.1 **Complaints**

Take complaints from the supervisors regarding their rating and requirements.

3.2.4.2 **Modify Data**

Input : Input data regarding modification of no. and types of machines, new or outgoing labor and the new material added.

Output : All this data is written to a file to be accessed to allocate work to the supervisors of the various regions.

3.2.4.3 **Sort Complaints**

Sort complaints on the basis of their priority and thus allocate work to the supervisors on the basis of the the raw material, machines and labor available.

3.2.4.4 **Allocation of Work**

Allocate work to the supervisors.

3.2.4.5 **Reschedule Work**

If anyhow some machine fails or for any reason the administrator wants to reschedule the work.

3.2.5 Mayor

3.2.5.1 **Obtain Statistics**

The Mayor has the right to access various road repair statistics such as the number and type of repairs carried out over a period of time and the repair work outstanding at any point of time and the utilization statistics of the repair manpower and machines over a period of time.

3.3 Performance Requirements

3.3.1 **Response Time**

Average response time shall be less than 2 seconds.

3.3.2 **Throughout**

“The system shall accommodate 1000 bookings per minute”

3.3.3 **Recovery Time**

In case of a system failure, the redundant system shall resume operations within 30 seconds. Average repair time shall be less than 1 hour.

3.3.4 **Start-up/Shutdown Time**

The system shall be operational within 1 minute of starting up.

3.3.5 **Capacity**

The system shall accommodate all the users of the system at any point of time.

3.3.6 **Utilization of Resources**

The system shall store any number of complaints.

3.4 Software System Attributes

3.4.1 **Security**

This software system shall run inside a firewall. This shall also support different roles, such as Clerk’s, Supervisor’s, Corporation Administrator’s and Mayor’s. Moreover the user logged in as a specific user shall only be allowed to access that section. Like a supervisor can only make demands for requirements to the administrator but not allocate work to oneself.

3.4.2 **Reliability**

The system shall not be down more than 2 times a year.

3.4.3 **Scalability**

The system will only be used by four users, i.e. clerk, supervisors, corporation administrator and city mayor and will easily handle all the four.