SOFTWARE REQUIREMENTS SPECIFICATION

For

“Ambulance Dispatch Module for Hit and Run Accidents”

1. Introduction

1.1 Purpose

Ambulance dispatch module for hit and run accidents resides in the "Aligarh Smart City Project." It aims at automating and streamlining the process of rescuing the hit and run victims from the accident site to the nearby hospital, thereby increasing the chances of survival and recovery.

1.2 Document convention

Each requirement statement is to have its own priority which is listed next to the requirement itself. A priority of "High" indicates that the given requirement is at top priority for the development team and is key to having a functional system. "Medium" priority requirements will be secondary; however, the development team still expects to complete as many of the associated features as time allows in-order to deliver a functionally equivalent system. Requirements labelled with a "Low" priority are stretch goals and depend on the time available at the end of the development period. Most of these requirements are additional features beyond the scope of the current feature set. They are documented for use in future development.

1.3 Intended Audience

This document is intended to help the developers and project managers to build and verify their module's feature set. It is also intended for the testers and documentation writers for understanding the same.

1.4 Product Scope

The module will receive CCTV footage frame in real time and will detect the incident of hit and run accidents. It would alert the nearby hospital for ambulance dispatchment if the person is left not rescued for 5 minutes. If the hospital doesn't respond for hospital dispatchment within 5 minutes another hospital is contacted. The module also receives acknowledgement regarding the pick-up of the victim from the accident site.

2. Overall Description

2.1 Product Perspective

The module is a new project which is a subsystem of the “Aligarh Smart City Project” which in turn is a new project.

2.2 Product Functions

- Detect hit and run victims, not rescued for 5 minutes.
- Send alert to the nearby hospital for dispatching ambulance to the accident location.
- Receive acknowledgement from the hospital regarding hospital dispatchment.
- Send alert to another nearby hospital for sending the ambulance, in the case when ambulance sending acknowledgement is not received.
- Receive acknowledgement regarding the pickup of the victim from the site.

2.3 User Characteristics

User	Use description
User application software installed on the computers of the staff responsible for dispatching ambulance.	Uses the main software to receive alerts and location data for dispatching the ambulance. It also sends back the acknowledgement regarding- i. Ambulance dispatchment ii. Patient rescued.

2.4 Operating Environment

The product will work in a windows 10 operating system environment.

2.5 Design and Implementation Constraints

The performance of the module will depend upon the training efficiency that would be achieved.

3. External Interface Requirements

3.1Functional requirements

3.1.1 Hit and Run Victim Detection

Number	Priority	Description
HR01	High	Detect hit and run victims not rescued for 5 mins.

3.1.2 Receive Acknowledgement Phase-1

Number	Priority	Description
AP1-01	High	Receive acknowledgement regarding the ambulance dispatchment.

3.1.3 Alert Generation

Number	Priority	Description
AG-01	High	Send alert to hospital to dispatch ambulance.

3.1.4 Receive Acknowledgement Phase-2

Number	Priority	Description
AP2-01	High	Receive acknowledgement regarding the pickup of the victim from the site.

3.1.5 Delay Mitigation

Number	Priority	Description
DM01	Low	In the case dispatched ambulance does not reach the victim for some specified time interval, another hospital is redirected.

4. Non-functional Requirements

4.1 Performance requirements

4.1.1 The module should ensure low latency in accident detection	High
4.1.2 Send alerts to nearby hospitals	High
4.1.3 Selection of ambulance with least arrival	High
4.1.4 Handle concurrent alerts	Medium

4.2 Safety requirements

4.2.1 Location of the accident should not be modified	High
4.2.2 The module should be robust	High

5. Hardware requirements

- Raspberry Pi
- SD card-8GB
- Laptop or PC

System architecture

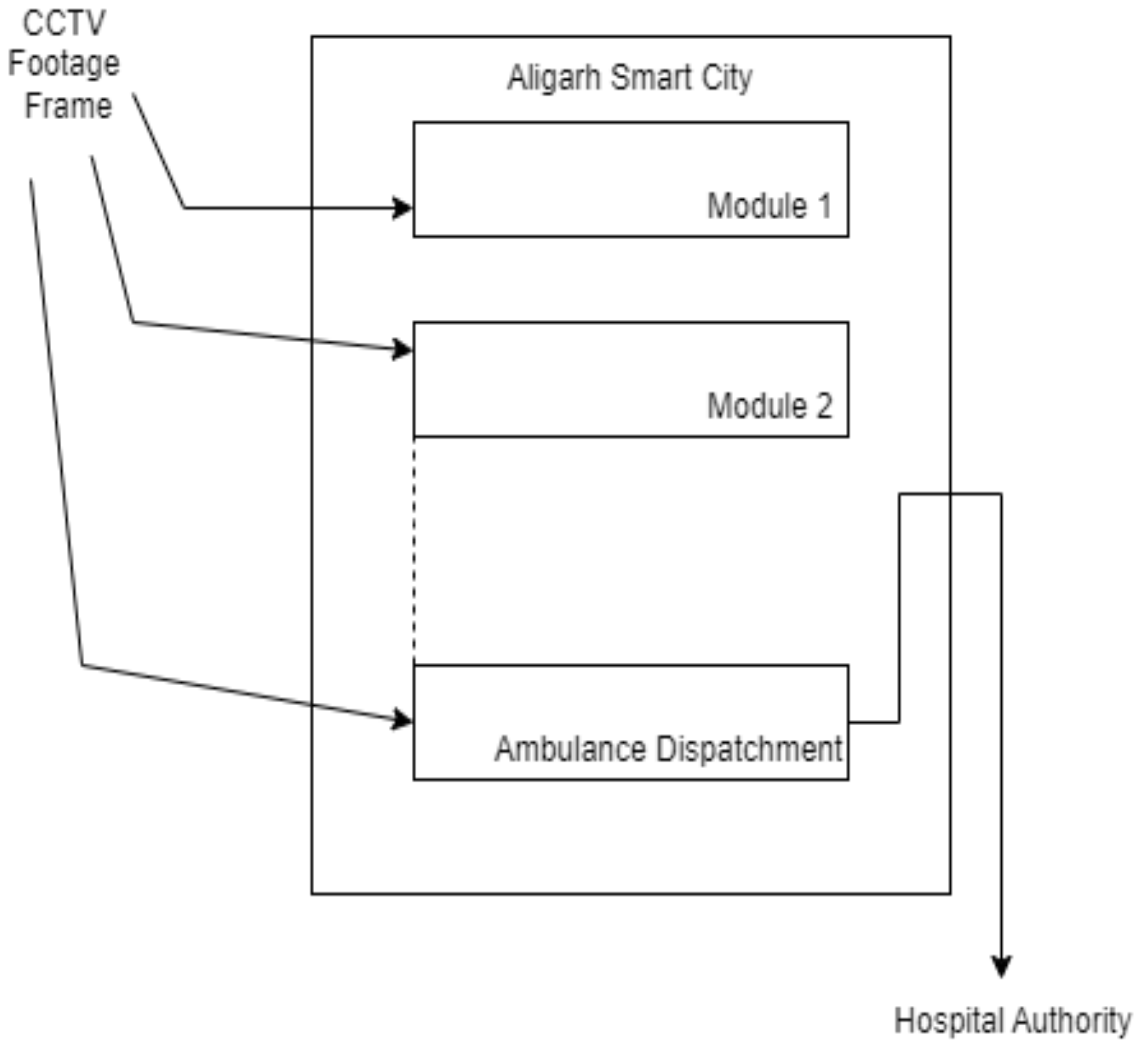


Fig: System Architecture

Use case diagram

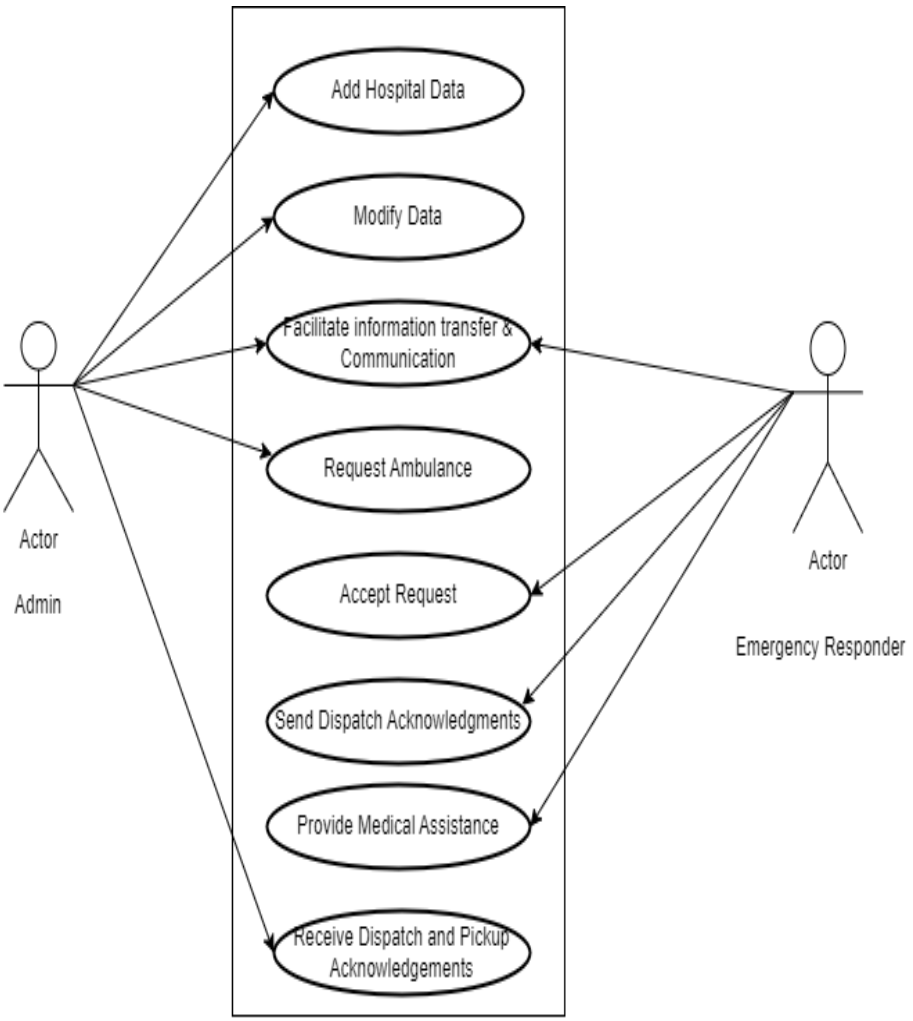


Fig: Use case diagram

Flowchart

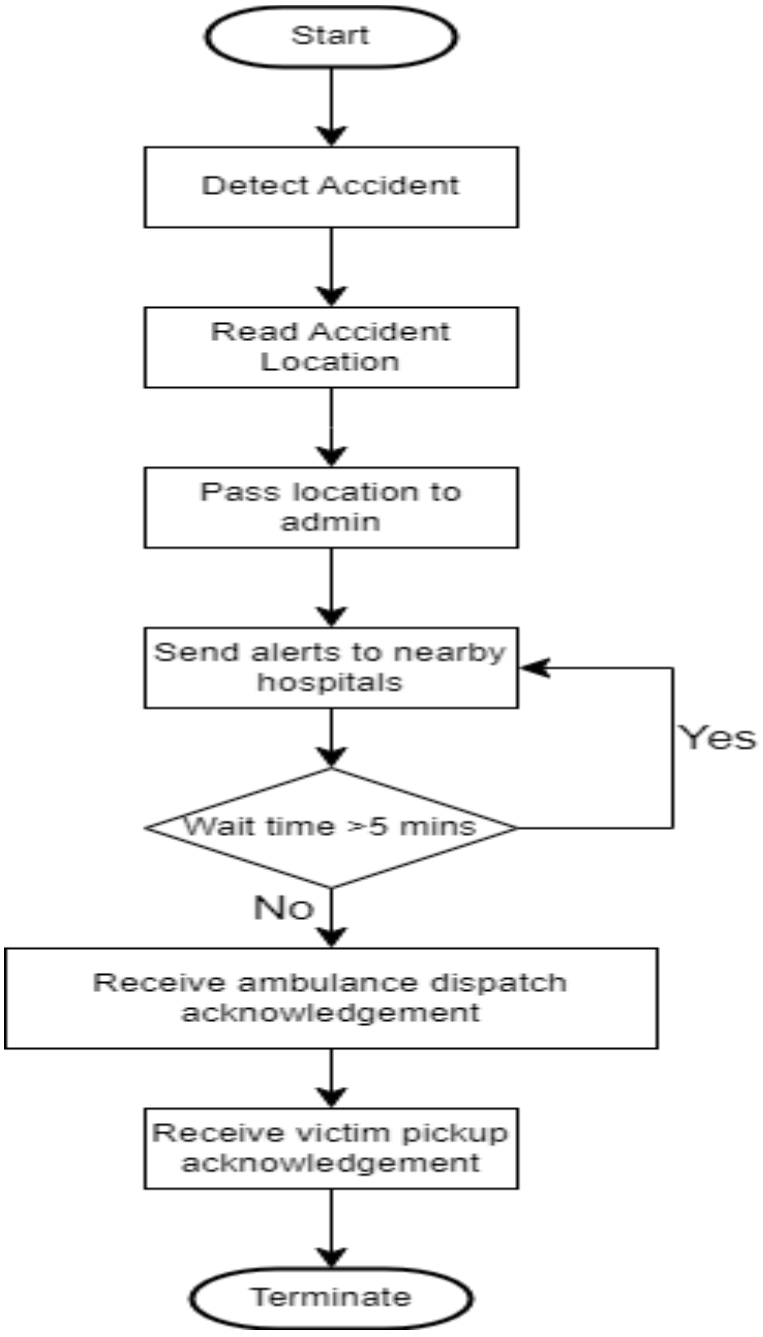
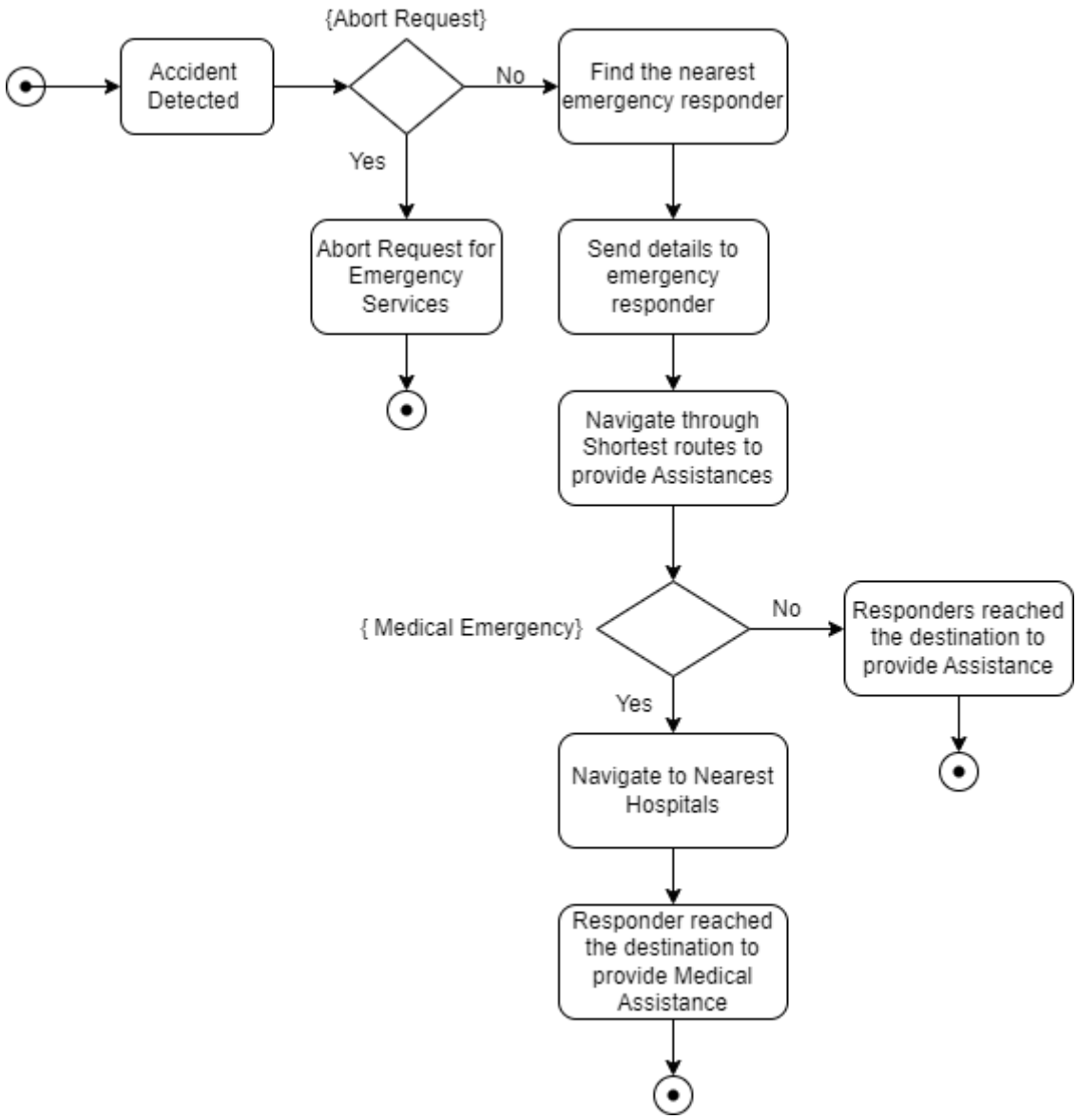


Fig: Flowchart


{Abort Request}
Accident Detected
No
Find the nearest emergency responder
Yes
Abort Request for Emergency Services
Send details to emergency responder
Navigate through Shortest routes to provide Assistances
{ Medical Emergency}
No
Responders reached the destination to provide Assistance
Yes
Navigate to Nearest Hospitals
Responder reached the destination to provide Medical Assistance