

Approval

The Project is our own and has not been presented for a degree in any other university with this functionalities and all the sources of material used for the project/thesis have been duly acknowledged.

1. WOUR/1374/07
2. WOUR/2024/08
3. WOUR/2028/08
4. WOUR/2065/08
5. WOUR/2068/08

This is to certify that I have read this project and that in my opinion it is fully adequate, in scope and quality, as a project for the degree of Bachelor of Science.

Name of Advisor

Signature

Examiner Name

Signature

1. Examiner 1

2. Examiner 2

3. Examiner 3

Acknowledgment

First of all, we would like to thank our almighty God, who gives us love, patience, health, wisdom and ability to walk through all the problems and obstacles during the period of our study. Our heartfelt appreciation for our adviser Mister Yosef and Amare for Those indefatigable guidance, valuable suggestion, moral support and constant encouragement in the documentation part. Furthermore, we would like to thank Mister Anteneh Eshetu for his constructive opinions and willingness to support us during this project. We also want to thanks inspector Getahun Keberet Ejegu and inspector Asmelash, who gave us information about kombolcha police station that we are asking for our project.

Last but not the least, we would like to express our love, thanks, appreciation, and respect for the ongoing support of our parents and family members, for there continues encouragement and financial support. And also we would like to thank the teaching staffs of College of informatics who have contributed wholly to the success of this documentation.

| | |
|--|----|
| Approval..... | i |
| Acknowledgment | ii |
| Abstract | ix |
| Abbreviations | x |
| Chapter One | 1 |
| Introduction of Whole Project Process | 1 |
| 1 Introduction..... | 1 |
| 1.1 Background about the organization..... | 1 |
| 1.1.1 Vision | 1 |
| 1.1.2 Mission | 2 |
| 1.2 Background about the project | 2 |
| 1.4 Objective of the Project..... | 4 |
| 1.4.1 General Objective | 4 |
| 1.4.2 Specific Objective | 4 |
| 1.5 Feasibility Analysis..... | 4 |
| 1.5.1 Operation feasibility | 4 |
| 1.5.2 Technical feasibility | 4 |
| 1.5.3 Economic Feasibility..... | 5 |
| Hardware development cost..... | 6 |
| 1.5.4 Political feasibility | 7 |
| 1.5.5 Schedule feasibility | 7 |
| 1.6 Scope and Significance of the project..... | 7 |
| 1.6.1 Significance of the project..... | 7 |
| 1.6.1.1 Beneficiaries of project | 8 |
| 1.6.1.1.1 Benefits to police station | 8 |
| 1.6.1.1.2 Benefits to Citizens | 8 |
| 1.6.1.1.3 Benefits to Police Department | 9 |
| 1.6.1.1.4 Benefits to Team member | 9 |

| | |
|--|----|
| 1.6.2 Scope and Limitation of the project | 9 |
| 1.6.2.1 Scope of project..... | 9 |
| 1.6.2.2 Limitation of the project..... | 10 |
| 1.7 Methodology | 10 |
| 1.7.1 Data gathering Methodology | 10 |
| 1.7.1.1 Interview..... | 10 |
| 1.7.1.2 Observation | 13 |
| 1.7.1.3 Document Analysis..... | 13 |
| 1.7.1.4 Analysis and Design Methodology..... | 13 |
| 1.7.1.5 Development tool | 13 |
| 1.7.1.6 Implementation..... | 14 |
| 1.8 Team organization..... | 14 |
| 1.9 Communication Means and Plan | 15 |
| Chapter Two..... | 16 |
| Description of the Existing System..... | 16 |
| 2.1 Introduction..... | 16 |
| 2.1.1 File handling | 17 |
| 2.1.3 Report Generation..... | 18 |
| 2.2 Players in the existing system | 18 |
| 2.3 Major functions/activities in the existing system..... | 19 |
| 2.4 Explanation of the business rule of the organization | 20 |
| 2.5 Report generated in the existing system | 20 |
| 2.6 Bottleneck of the existing system | 21 |
| 2.6.1 Performance (Response time) | 21 |
| 2.6.2 Input (Inaccurate/redundant/flexible) and Output (Inaccurate)..... | 21 |
| 2.6.3 Security and Controls | 21 |
| 2.6.4 Efficiency..... | 22 |
| 2.7 Proposed solution for the new system..... | 22 |
| 2.7.1 Handling Files: | 22 |
| 2.8 Requirement Specification..... | 22 |
| 2.8.1 Functional Requirements | 22 |

| | |
|---|----|
| 2.8.2 <i>Non-Functional Requirements</i> | 23 |
| 2.9 Modeling the existing systems | 24 |
| 2.9.1 <i>Essential Use Case Modeling</i> | 24 |
| 2.9.2 <i>Essential User Interface Prototyping</i> | 26 |
| 2.9.3 <i>Essential User Interface Prototyping flow diagrams</i> | 28 |
| 2.9.4 <i>Domain modeling with class responsibility collaborator (CRC)</i> | 28 |
| Chapter Three | 31 |
| System Analysis (Modeling the Proposed System) | 31 |
| 3.1 Introduction | 31 |
| 3.2 Modeling proposed systems | 31 |
| 3.2.1 <i>System use case diagrams</i> | 33 |
| 3.2.2 <i>Use case Description</i> | 33 |
| 3.2.3 <i>Sequence Diagram</i> | 50 |
| 3.2.4 <i>Activity Diagram</i> | 55 |
| 3.2.5 <i>Analysis level class diagram (conceptual modeling)</i> | 60 |
| 3.2.6 <i>User Interface Prototyping</i> | 62 |
| Chapter Four | 64 |
| System design | 64 |
| 4.1 Introduction | 64 |
| 4.1.1 <i>Design goals</i> | 64 |
| 4.2 Class type architecture | 65 |
| 4.3 Class modeling | 67 |
| 4.4 State chart modeling | 67 |
| 4.5 Collaboration Modeling | 69 |
| 4.6 Component Modeling | 72 |
| 4.7 Deployment modeling | 74 |
| 4.8 Persistence modeling | 75 |
| 4.9 User Interface design | 77 |
| Chapter Five | 78 |
| Implementation and Testing | 78 |
| 5.1 Introduction | 78 |

| | |
|--|----|
| 5.2 Final Testing of the system | 78 |
| 5.3 Hardware software acquisitions | 80 |
| 5.4 User manual preparation | 81 |
| 5.5 Training | 87 |
| 5.5.1 Training strategy | 88 |
| 5.6 Installation Process | 89 |
| Chapter Six | 91 |
| Conclusions and Recommendation | 91 |
| 6.1 Conclusions | 91 |
| 6.2 Recommendations | 91 |
| Appendix | 93 |
| Reference | 94 |

List of figures

| | |
|---|----|
| Figure 1: Use case Diagram of existing system | 25 |
| Figure 2: Essential User Interface Prototyping | 27 |
| Figure 3: use case diagram of proposed system..... | 33 |
| Figure 4: login sequence diagram | 51 |
| Figure 5: Dispatcher Sequence Diagram | 52 |
| Figure 6: Updating Database Sequence Diagram | 53 |
| Figure 7: Deleting Record Sequence Diagram | 54 |
| Figure 8: Accident Detection report Sequence Diagram | 55 |
| Figure 9: Report Generation | 56 |
| Figure 10: Login activity diagram | 57 |
| Figure 11: Report generation activity diagram | 57 |
| Figure 12: Update Activity Diagram | 58 |
| Figure 13: Resource Activity Diagram | 59 |
| Figure 14: Logout Activity Diagram | 60 |
| Figure 15: class diagram | 61 |
| Figure 16: User Interface Prototyping | 63 |
| Figure 17: Class type architecture..... | 66 |
| Figure 18: class diagram [1], [2] | 67 |
| Figure 19: view report..... | 68 |
| Figure 20: post information..... | 69 |
| Figure 21: Login collaboration diagram | 70 |
| Figure 22: Collaboration diagram for emergency report | 71 |
| Figure 23: Collaboration diagram for resource allocate [4]..... | 72 |
| Figure 24: component diagram | 73 |
| Figure 25: deployment diagram [3] | 74 |
| Figure 26: Persistence modeling diagram | 76 |
| Figure 27: User interface of KCPS | 77 |
| Figure 28: user interface | 82 |
| Figure 29: accident report page..... | 83 |
| Figure 30: responding from system | 83 |
| Figure 31: User login page..... | 84 |
| Figure 32: the system responding when inserted invalid data | 85 |
| Figure 33: accident control team page | 85 |
| Figure 34: accident control team to change the password | 86 |
| Figure 35: dispatcher home page | 87 |
| Figure 36: appendix | 93 |

List of Tables

| | |
|--|----|
| Table 1: Hardware Cost | 6 |
| Table 2: Software Cost..... | 6 |
| Table 3: cost of manual system..... | 7 |
| Table 4: Schedule Feasibility | 7 |
| Table 5: Development tools | 14 |
| Table 6: Team organization | 15 |
| Table 7: Class Responsibility Collaborator of Dispatcher..... | 29 |
| Table 8: class responsibility collaborator of field officer | 29 |
| Table 9: class responsibility collaborator of society | 30 |
| Table 10: class responsibility collaborator of Information desk..... | 30 |
| Table 11: Login description | 34 |
| Table 12: adding user use case..... | 35 |
| Table 13: updating user account use case | 37 |
| Table 14: delete user account use case..... | 37 |
| Table 15: updating record use case | 38 |
| Table 16: deleting record use case | 39 |
| Table 17: adding record use case | 40 |
| Table 18: Emergency report use case | 42 |
| Table 19: open incident use case..... | 42 |
| Table 20: accident detection use case | 43 |
| Table 21: view posted information | 44 |
| Table 22: view request | 45 |
| Table 23: View accident file | 46 |
| Table 24: Change password | 47 |
| Table 25: allocate resource use case | 48 |
| Table 26: View report | 49 |
| Table 27: logout use case | 50 |
| Table 28: unit testing..... | 79 |
| Table 29: integrated testing..... | 79 |
| Table 30: system testing..... | 80 |

Abstract

The web based accident management system solves and minimizes so many problems on the organization. This means that there is a central application database to store data. This system help for the employee of Kombolcha city police station to communicate and also access their data easily. In general the system enables the transactions to be easier and faster.

The system activity flow seems the following. When an accident occurs in a society, the society informs the occurrence and other reliable information about the accident for the field officer. Then, the field officer informs the dispatcher by sending message on the form available on the website to detect the accident. After the dispatcher retrieves the detail information from the message sent by the field officer, he/she allocates resource.

Abbreviations

AIMS: Accident Information Management System

AMS: Accident Management System

KCPS: Kombolcha City Police Station

OOA: Object Oriented Analysis

OOSD: Object Oriented Development

PHP: Hypertext Preprocessor

SMEs: Subject Matter Expert

SQL: Standard Query Language

Chapter One

Introduction of Whole Project Process

1 Introduction

The development of one country is analyzed from many direction or factors such as peaceful, security of the people and their property etc. Those are protected by accident management station such as police and society. The institution of accident management station stands to protect peoples and their property from danger. Our project aimed to develop new web based accident management system. The proposed system applies to accident management institution all across the country and specially looks in the subject of accident management system of Kombolcha city. It is well understood that accident prevention and detection of accident depend on highly responsive back bone to information management system. The efficiency of the accident controlling and the effectiveness with which it deals with accident depend on what quality of information it can drive or received from where the accident is occur and how fast it can have response to it.

1.1 Background about the organization

Kombolcha city police station is one of the institutions of accident management station, that was established long years ago in order to give service and protect Kombolcha city from accident. The station has responsible for receiving the accident sound and giving quick response to the received accident sound and storing the nature of the accident, the location details, the sequence of the accident, information on victims. But this task is managed manually beginning from collecting and recording data about the accident and the technique of response to the accident. The accidents that can be reported can be either natural or human made. Some of these accidents are traffic accident, fire accident, killing or murder, flood, electric current accident, earthquake and harassment.

1.1.1 Vision

- ❖ To be one of the well organized and known service in Ethiopia and other developed countries.
- ❖ To increase the quality of service to society.

- ❖ To fulfill interest of society and increase communication with developed country.
- ❖ Satisfying the society.

1.1.2 Mission

- ❖ To transfer useful and modern technology for the society.
- ❖ To give suitable and fast service based on society request.
- ❖ To increase the acceptance of the police stations.
- ❖ To increase the employee by supporting the technology.
- ❖ Finally they will consistently respond, fast and modern service, friendly service and give great value to citizens that make the society confident on kombolcha police station.

1.2 Background about the project

Now a day, the introduction of new information systems is increasing at an alarming rate to bring radical change to the existing manual system, improve the performance of other systems and solve difficulties. Though this technology is new to our country Ethiopia and most of other developing countries, it was/is exploited well in developed Continents, like Europe, Asia and North America. The project is intended to advocate for the need of kombolcha city police station to use facilitated computerized and web based accident information management system. Because even if there is no organized accident management station in the city, the police station that give this service use manual way of information gathering and documenting, no reliable communication between different stations, as well as there is no optimized way to facilitate the service. So we are initiated to develop new web based automated system. As a result the team member believed that the user will have the expected satisfaction of the service provided by accident management system of kombolcha city police station. Therefore, the team member recommends to kombolcha city police station migrate system to the computerized and web based accident information management system to facilitate their service that they give to the society.

1.3 Statement of the problem

In kombolcha city police station accident information management apply manual way of implementing tasks. The police station has the following problem:

- ❖ Difficult of getting real information at real time when accident occurred that help to have real time response to accident.
- ❖ Difficult to manage the overall system.
- ❖ Accident file control mechanism is very tedious and complicated.
- ❖ Data redundancy and inconsistency.
- ❖ Difficult of communication of field office, society and the station to give and get real time response to the accident.
- ❖ The officer lost the write information about the accident also loss accident information.
- ❖ Someone come from other place suddenly die in accident the person have not id or something about himself tell, Only thing is write report and stored it.
- ❖ Difficult of getting available resource to control and detect the accident at real time and to save human life and property since there is no organized detective in the system to control the accident rather than the society and police are tries to detect the accident as much as possible.
- ❖ Difficult to prepare consistent reports, because records are documented manually and require much time and human power to search and get wanted information (file).
- ❖ There is no fast and efficient way of sharing critical information across the station as well as with the external environment.
- ❖ The current system has high work load for staff of police department.

- ❖ Also there is security problem as we mentioned before, the existing system is manually system in which document are stored in packed paper files so that the file are highly exposed to damage and can be stolen by any other unauthorized person or group.

1.4 Objective of the Project

1.4.1 General Objective

The general objective of this project is developing new web based accident information management system for KCPS.

1.4.2 Specific Objective

The specific objective of the accident management in KCPS include:-

- ❖ To analyze the current system to design new data base system operated easily using web based system.
- ❖ To enabling the workers to communicate easily across the station and with their external environment.
- ❖ To forward the recommendation about system implementation.

1.5 Feasibility Analysis

Most of information system projects have budgets and deadlines, and analysis of factors for the feasibility forms the business case (analysis of assumptions like resource availability and potential problem and system costs and benefits) that justifies the expenditure on the project.

1.5.1 Operation feasibility

The system we develop provides accurate, secured service and decrease the labor work load. Also the system can be easily operated. It does not affect the existing organization structure. So, the system is operationally feasible.

1.5.2 Technical feasibility

General study in the project area has shown that the current technology and ability exists in order to complete objectives our system. That is, our project can be done with current equipment, existing software technology and available personnel and therefore it can be conclude that the system is technically feasible.

1.5.3 Economic Feasibility

The system we develop is economically feasible and the benefit is outweighing the cost. Since this project already computerizes the existing system by the reduction of cost for materials used in manual operation, it becomes a beneficiary to the organization.

Generally, the system that we develop for Kombolcha City Police Station accident information management brought a number of tangible and intangible benefits. The computerized system takes care of the present existing system's dataflow and procedures completely and should generate all the reports of the manual system besides a host of other management reports. Depending on this, we are going to determine the benefits of this project by dividing into two. Those are tangible and intangible benefits.

Cost Benefit Analysis

A) Tangible Benefits:

According to our determination, the project we are going to develop will provide the next benefits as tangible benefits. Those are:

- ❖ Cost reduction: -to calculate the following things will be considered
- ❖ Cost reduction and avoidance
- ❖ Error reduction
- ❖ Increase speed of activity
- ❖ Decrease the cost given to employees.
- ❖ Increase the income of the organization.

The tangible costs to be acquired in developing the system are:

- ❖ Require equipment with costs which includes hardware development cost and other costs.
- ❖ Software development cost.

B) Intangible benefits:

The benefits that we have determined under economic feasibility as intangible benefits are:

❖ Reduce Resource Consumption

❖ Increase security

Cost of the project

Hardware development cost

| No | Material | Amount | Unit price(Birr) | Total price |
|----|---------------------|----------|------------------|---------------------|
| 1 | HP CORE i7 | 1 | 10,000.00birr | 10,000.00birr |
| 1 | Paper (A4) | 2 packet | 180.00birr | 180.00birr |
| 2 | Pen (Bic5) | 5 | 5.00birr | 25.00birr |
| 3 | Flash memory (16GB) | 1 | 200.00birr | 200.00bir |
| 4 | CD-RW | 1 | 20.00birr | 40.00birr |
| 5 | Copy | - | 200.00birr | 200.00birr |
| 6 | Print | - | 300.00birr | 300.00birr |
| 7 | Total | | | 10945.00birr |

Table 1: Hardware Cost

| No | Material | Price per unit |
|--------------|----------------------------|----------------|
| 1 | Microsoft office 2013 | 900 |
| 2 | Microsoft Visio 2013, 2007 | 800 |
| 3 | WampServer | 700 |
| 4 | Sublime | 3000 |
| Total | 5400.00 Birr | |

Table 2: Software Cost

Manual cost management system of our project

| No | Material | Amount | Unit price(Birr) | Total price |
|----------|--------------------------|-----------|------------------|------------------------------|
| 1 | employee | 121 | 1000.00birr | 121,000.birr |
| 2 | Paper (A4 and others) | 30 packet | 180.00birr | 5400.00birr |
| 3 | Pen (Bic5) | 100 | 5.00birr | 500.00birr |
| 4 | Stores(information desk) | 12 | 100,000.00birr | 1200,000.birr |
| 5 | shelf | 36 | 1000.00birr | 36,000.00birr |
| 6 | others | - | 100,000.00birr | 100,000.0birr |
| 7 | Total | | | 1,462,900.00 birr |

Table 3: cost of manual system

1.5.4 Political feasibility

The system we develop is not conflict with any government directly or indirectly, because this new web based accident information management gives service to citizens and the government .Due to this, it is politically feasible.

1.5.5 Schedule feasibility

The system can be implemented in an acceptable timeframe given. Project managers also responsible for monitoring &controlling the project development based on the schedule.

| Tasks | Start | Finish |
|---------------------------|------------|------------|
| Project proposal | 01/04/2011 | 20/04/2011 |
| Requirement analysis | 21/04/2011 | 21/05/2011 |
| Design | 21/05/2011 | 21/06/2011 |
| Implementation and coding | 01/07/2011 | 01/08/2011 |
| Testing | 10/08/2011 | 30/08/2011 |

Table 4: Schedule Feasibility

1.6 Scope and Significance of the project

1.6.1 Significance of the project

- ❖ The most important feature of the new system is that it is an accurate , easy and efficient system to detect accident as well as record accidental information such as date and time when the accident occur, location and level of the accident.

- ❖ Also cause and effect of the accident of the accident carefully recorded and documented.
- ❖ Simple and user friendly.
- ❖ It is enable searching the required information by using keys and also the main function of the system is sharing of information to the appropriate of different station.
- ❖ Report generation is done when necessary or required any time.
- ❖ Easy to maintain, fast, and accurate.
- ❖ Total number of each accident can be see easily.
- ❖ The can use English language.
- ❖ Learn society about they protect them self from accident.
- ❖ Generally, the purpose of this accident information management system is to solve all the problem of the organization and to satisfy the requirement of the people.

1.6.1.1 Beneficiaries of project

1.6.1.1.1 Benefits to police station

- ❖ Avoiding improper resource consumption like paper, pen.
- ❖ Avoiding data loss because of improper data storage
- ❖ Error free investigation files in the station can be transferred from generation to generation
- ❖ Enhance security mechanisms to protect crime records

1.6.1.1.2 Benefits to Citizens

- ❖ Multiple Simplified for reporting the accident.
- ❖ Can view posted informations by the station anywhere at any time.
- ❖ Faster and assured response from police to any accident.

1.6.1.1.3 Benefits to Police Department

- ❖ Enhanced tools for investigation.
- ❖ Facilitates fast and efficient retrieval of data.
- ❖ Can post necessary information to society easily.
- ❖ Reduced workload of the police station back-office activities such as preparation of reports and station records management.
- ❖ Can easily control the system.

1.6.1.1.4 Benefits to Team member

- ❖ The team member can get additional knowledge.
- ❖ We can get degree of computer science.
- ❖ Support the team member for next working.

1.6.2 Scope and Limitation of the project

1.6.2.1 Scope of project

This project aims developing new web based system for Kombolcha City Police Station accident information management system. On completion of this project, we expect the system will have:

- ❖ The new web based accident information management is system which is customized to the kombolcha city police station.
- ❖ With less effort and cost the system is able to maintain and store information.
- ❖ Accurate way of recording and storing information in to the database.
- ❖ Post information (post unknown people die in accident).
- ❖ Presence of centralized documented and organized record.
- ❖ Give knowledge to the society in order to protect their self from accident.
- ❖ The system does not concern about the crime file management system.

- ❖ Facilitate timely management decision making and enable to have real time response to the accident detect it.
- ❖ Enabling the workers of the system to get reliable information where and when occurred as well as the type and level of accident to give reliable to response on detecting the accident.
- ❖ Prepared report easily.

1.6.2.2 Limitation of the project

There are many constraints with in our system, which limit their following effectiveness of performance. Our system is limited only in the process of web based accident information management system of the KCPS, but does not include about crime file management system, the system depends on electric power and network connection .The above activities or subsystems are proposed system imitations because of the following reason.

- ❖ Time were the main factor of limitation, since the system can't use other languages.
- ❖ Resources, we have not laptop as an alternative when arbitrary failed the desktop and also when the power is off for a long time.
- ❖ The system can't detect an accident.

1.7 Methodology

1.7.1 Data gathering Methodology

The requirement of the system is gathered using primary data collecting techniques. These are listed below.

1.7.1 .1 Interview

One of data gathering methodologies or mechanism we used to collect information by making a formal meeting at which we are asked some questions to KCPS manager and other member police as well as some peoples who live in the city.

Interview questions

1. How many substations are there in the city?
2. Tell us the location of each substation including the main station.
3. What are the kinds of accidents that can be reported to the station?
4. What are the resources or materials that are used for managing accidents?
5. In what format does the accident reported to the main station?
6. Who is the controller of information flow?
7. Who is the manager of the organization?
8. In what way do you solve the shortage of resources when managing the accident?
9. Who checks the availability of resources?
10. Do you give priority for an accident which needs more attention and many resources than the other one?
11. In what way does a accident controlling team report if it gains a problem before arriving at the place of accident?
12. Which station is responsible to detect the accident, according to the nearness and farness of the place of accident?
13. Do you have any mechanism to identify the shortest path?
14. Do you have business rule? If yes, what are those?
15. What problems may be faced during accident detection?
16. What are the problems of the current system?
17. Does each station have resource for accident detection?
18. Is there any unique station for each kind of accident?
19. Who is the responsible person for inserting into, deleting from and updating the database?

[illegible]

1.7.1.2 Observation

Observation is the second data gathering methodology we used to collect information by direct watching some accidents inside the university and other traffic accidents when we are going to town by taxi.

1.7.1.3 Document Analysis

Document analysis is used to understand how the system is working. We used this method to know all about the police station mission, vision, function and overall of their work in short and brief.

1.7.1.4 Analysis and Design Methodology

In this project, our team uses object oriented system development methodology (OOSD) for the design. This techniques has several phase. some of them are:

- ❖ Object oriented analysis (OOA):-during this phase the team uses to models the function of the system (use case modeling), finding and identify the business objects, organize the objective and identify the relationship between them and finally model the behavior of the objects in detail.
- ❖ Object oriented design (OOD):-During this phase our team uses Microsoft software to refine the use case model and rational rose for designing the sequence collaboration, activity diagrams and to model object interaction and behavior that support the use case scenario.

1.7.1.5 Development tool

| Activities | Tools |
|--------------------|-----------------------------------|
| Client side coding | HTML |
| Database Server | MY SQL database |
| Web server | Apache server |
| Server Side Script | PHP |
| Browser | Firefox 3.0, IE 5.5/6.0/7 etc.... |

| | |
|---------------|---------|
| Editors | Sublime |
| Documentation | MS Word |
| Design | Visio |

Table 5: Development tools

1.7.1. 6 Implementation

Implementation is a phase where all the work during analysis and design will be turned to a functional system. Prototype is divided into three sub phase: interface implementation, database implementation, and logical implementation. In interface implementation, we have tried to implement user- interface. Logical implementation implements the server-side functionality of the system.

1.8 Team organization

The project team is composed of 5 members, one team leader, one vice leader, one secretary, and 2 members. Problem solving is group activity. Decision on problem and approach are made by group agreement, which is much better than individual decision.

| | | | |
|---------------|--|-------------------|---|
| Project Title | ACCIDENT INFORMATION MANAGEMENT SYSTEM FOR KOMBOLCHA CITY POLICE STATION | | |
| PREPARED BY | ID NUMBER | NAME | RESPONSIBILITY |
| | WOUR/2024/08 | SIRAG MOHAMMED | -Group Coordinator -documentation, implementation |
| | WOUR/2065/08 | YORDANSE KASSAHUN | -V-coordinator -Designing and Testing documentation |
| | WOUR/1374/07 | TESFAYE ADMASU | -Secretary and coding -Testing documentation |

| | | | |
|--|--------------|----------------|---------------------------------------|
| | WOUR/2068/08 | ZEKIY SEID | Analysis/ Requirement Gathering |
| | WOUR/2028/08 | TADESSE ADUGNA | -Testing -give an idea |

Table 6: Team organization

1.9 Communication Means and Plan

While we are working on our project, we use the following means of communication in order to meet one another and with our advisor to exchange suggestions and ideas. Those techniques, we use to communicate include Mobile Phone, email, telegram and also some other social medias.

We have a plan to communicate each other four days (Monday, Wednesday, Thursday, Saturday,) in a week. And also an advice time with our advisor one day (Friday) in a week.

Chapter Two

Description of the Existing System

2.1 Introduction

In this chapter, we studied the existing system deeply since it is necessary to know the existing working system of office so as to develop a better system. When we studied the existing system, we gave emphasis for the following questions:-

- ❖ How the existing system works?
- ❖ What kind of method they use to handle accident data?
- ❖ In what way the police office manages accident information?
- ❖ Which are the business rules of the office?

After studying the existing systems, we also determined the requirement or the feature that must be included in the proposed system. Furthermore, by analyzing the current system, we could also estimate how the propose system solve the setbacks of the existing systems. Kombolcha City Police Station offers many services for the society of the city and around the city.

There is 7 main department in this institution:

- ❖ Follow up criminal information.
- ❖ Buying and finance administration Supporter.
- ❖ Road traffic security acknowledgment.
- ❖ Criminal examination.
- ❖ Police service.
- ❖ Human resource furtherance.
- ❖ Society include police service.

Collecting information about any accident occur in and around the city based on the received information about the accident. The current system generally performs the following tasks:

- ✓ It allocates resource.
- ✓ Detect the accident.
- ✓ Recording and documenting all necessary information about the accident manually.
- ✓ Generate report about accident if required by any private and government institution.

The report is prepared according to their request that may want to support societies that do not suffer from the accident and protect peaceful security and properties of the society from danger.

2.1.1 File handling

They record their file of accident report, daily, weekly, monthly, 3 months, 6 months, yearly reports and other information related with accident on paper. If they want to update files and records, the searching activity is very tedious and boring. The format of file recording is not consistent.

2.1.2 Accident Identification

01(Abishager),02(Siment),03(Kuteba),04(Rasages),05(Berberiwenz),06(borcheli),07(Ancharo),08(Shehaber),09(Ayermarefiya),10 (Awescod),11,12 are found in Kombolch city. Polices has different level of power, such as commander, inspector, sujine, and other lower level polices. Currently, they are around 121polices that are involves in accident information management system. When one accident occurs in one kebele, the people inform that accident for the police located around that kebele. Then these polices tell for the field officers. The field officer reports that accident for the dispatcher in the main station. The dispatcher then checks the availability of resources. If resources are available, he/she allocate these resources and send the accident controlling team to the place of the accident. Else if there is no available resource, they take any of individual or private resources that are useful to manage the accident, from any place if they are free to use. In KCPS, there is no organized accident controlling team for each accident type. So, they request help from other organizations which are responsible and which have ability to manage that accident. If the resources available in the sub-station are not enough to manage that accident like have not jail, they transfer that report for the KCPS.

2.1.3 Report Generation

Each station prepares and presents report daily, weekly, monthly, in 3 months, in 6 months, and per year for the main station KCPS. In the same way the main station of the city prepare report based on the reports collected from the sub-stations and presents it for the main station. Daily reports can be by paper, if the substation is near to the main station or simply by using telephone or radio if it is not possible, but weekly and further longer time reports would be reported with paper and all data would be given to the information desk controller.

2.2 Players in the existing system

The existing system enables the Field officer

- ❖ If the field officer exist in accident place report accident.
- ❖ Call to police station and he/she need additional resource.
- ❖ Directly work with society.
- ❖ Collect all necessary information note book.

The existing system enables the society

- ❖ If society see the accident happen directly report the accident
- ❖ He/she report in two ways either in telephone or physically going to police station.
- ❖ Send their comment either in oral or written form.

The existing systems enable the Administrator/Dispatcher

- ❖ The dispatcher accept the emergency accident report automatically assign resource and notify to accident control team.
- ❖ View previous accident report
- ❖ Update previous accident report.

The existing systems enable the Accident controlling team:

- ❖ Accident report the dispatcher sends the accident report the go to place and prepare the report.
- ❖ Prepare the report.
- ❖ Learn how to protect from accident for society.

The existing systems enable the Information Desk to

- ❖ Retrieve data and give appropriate information to user and dispatcher
- ❖ Document and organize daily report come from Field officer and accident controlling team with the final modification.

2.3 Major functions/activities in the existing system

A, Report Emergency accident:-in the existing system the emergency accident reported in three way. First is society calling telephone to police stations. Most time the telephone is busy because the police stations have only one telephone. Second the society come to police station in physically, third radios.

B, Generate report:-the report prepared in day, three day weeks, month, three month, six month, year report. This report is major report generate time. All report generate is very tedious and complex because all thing is done in manually so difficult to prepared report, specially the month, three month, six month, year report are more difficult and additional task to police department to search the file.

C, Store the accident file:-the existing system store the accident information in manually. This method is not secured, also have not backup and not organized. The accident file only in one document if the paper damage also damage the accident file.

2.4 Explanation of the business rule of the organization

A business rule of existing system is successfully an operating standard or policies that will explain for existing system of KCPS.

The existing system has many business rules or principles. Some of them are:

Br1: New accident reports (first information reports) have to received and organized by accident control team.

Br2: Emergency accident should get fast response as much as possible like human life.

Br3: accident file should be investigated by Accident control team.

Br4: The accident should be happened in kombolcha city or around the city, in order to start investigation process.

Br5: any accidental emergency should be reported in 24 hours

Br6: society had right to report any accident

Br7: Dispatcher police officer should work for 24 hours to accept accident reports

2.5 Report generated in the existing system

Each station prepares and presents report daily, weekly, monthly, in 3 months, in 6 months, and per year for the main station kombolcha city police station. In the same way the main station of the city prepare report based on the reports collected from the sub-stations and presents it for the Zone station. Daily reports can be by paper, if the substation is near to the main station or simply by using telephone or radios if it is not possible, but weekly and further longer time reports would be reported with paper and all data would be given to the information desk controller.

2.6 Bottleneck of the existing system

In kombolcha city police station accident management apply manual way of implementing tasks. It will be face many technological problem to site some this multi-phase factors in the case of police station are the following problem:

2.6.1 Performance (Response time)

- ❖ Difficult of getting real information at real time when accident occurred that help to have real time response to accident.
- ❖ Difficult of communication of field office, society and the station to give and get real time response to the accident.
- ❖ System has work load for police department.

2.6.2 Input (Inaccurate/redundant/flexible) and Output (Inaccurate)

- ❖ Difficult to generate report
- ❖ Difficult in conducting consistent reports because the record is documented manually and require much time and human power to search and get wanted information (file).
- ❖ Data redundancy and inconsistency

2.6.3 Security and Controls

- ❖ Difficult of getting available resource to control and detect the accident at real time and to save human life and property since there is no organized detective in the system to control the accident rather than the society and police are tries to detect the accident as much as possible.
- ❖ Difficult to manage the overall system.
- ❖ Someone come from other place suddenly die in accident the person have not id or something about himself tell, Only thing is write report and stored it.
- ❖ Accident file control mechanism is very tedious and complicated.

Also there is security problem as we mentioned before, the existing system is manually system in which document are stored in packed paper files so that the file are highly exposed to damage and can be stolen by any other unauthorized person or group.

2.6.4 *Efficiency*

- ❖ There is no fast and efficient way of sharing critical information across the station as well as with the external environment.
- ❖ The officer loss the paper that write the report is also loss the information about the accident.

2.7 Proposed solution for the new system

The proposed accident management system has global functionality, but it is optimized to kombolcha city police station. This system solves all problems we have seen in the existing system.

2.7.1 *Handling Files:*

When we start from file handling, they it every accident record in a database. So, the dispatcher can simply access i.e. searching, updating, or deleting the records; it also make the system secured from illegal or unauthorized users or persons.

2.8 Requirement Specification

2.8.1 *Functional Requirements*

The new system will be a networked application that will run on client -server and to provide case to use user interfaces to the users and window server for the server side application. The new system will also perform record management function that the system should record all the modifications on the record management system. All in all the functionalities that will be provided by the system are the following.

The system enables the Field officer:

- ❖ To send emergency report.
 - ❖ To view emergency report
- The system enables the society:
- ❖ To send report to the Dispatcher.
 - ❖ To get acknowledgment.
 - ❖ View news.

The system should enable the Administrator/Dispatcher:

- ❖ To post information to society.

- ❖ To view report comes from team control and society.
- ❖ To manage user account.
- ❖ To notify the team control that he/she receive the report.
- ❖ To get report about amount and type of resource currently available.
- ❖ To communicate with the accident controlling team and field officer until the accident is managed.

2.8.2 Non-Functional Requirements

Non-functional requirements describe user-visible aspects of the system that are not directly related with the functional behavior of the system. These requirements do not directly affect the performance of the system but are none the less important .They are concerned with security, performance, internationalization, usability, maintainability, reliability, modifiability, efficiency, portability across operating systems, testability, understandability. Generally the non-functional requirements of the system are presented below.

- a) Speed: The system will perform at 1 second or less at normal circumstances while appending and retrieving data to and from the database respectively (i.e. when networks and nodes are ok).
- b) Reliability: The system allows reliable communication between the main station with sub-stations, and society. It also allows reliability while searching and displaying data from the database, while appending data in the database and data are passed to the correct end user. The developed system should able to perform a required function under stated Conditions for a specified period of time.
- c) Security: The system database will be secured from accessed by any unauthorized person by making the login to the system only restricted to legal persons. We use strong password so it does not accessed by illegal person.
- d) Quality: The system allows putting backup of data and it fulfills all user requirements.
- e) User friendly interface Simple and interactive user interface components should be part of the system. This user friendly interface requirement of the system will be available in any end user and system administrator interface of the application.

- f) Usability: The system provides a help and support menu in all interfaces or give direct input for the user to interact with the system.
The user can use the system by reading help and support.
- g) Performance: Our system speed operation is very high. That means the accuracy and response time of
The system should be very fast.
- h) Availability: The system should always be available for access at 24 hours, 7 days a week.
Also in the occurrence of any major system malfunctioning.
- i) Portability: The system supports every operating system.
- j) Maintenance: New additional features can be added if required and also the system components i.e. memory, disk, drives shall be easily serviceable without much alteration in the code.
- k) Back up:-The system should have back up using external hard disk. The backup is taken weekly.
- l) Error handling: Our system handles error by showing the message” invalid input” when the user enter invalid input.

2.9 Modeling the existing systems

2.9.1. Essential Use Case Modeling

Use case Diagram

We use this UML diagram to present the functionality of the system from the actor's point of view. We use the use case model diagram to show graphically the system scope and boundaries as well as to represent the relationships between the actors and use cases. This UML diagram describes a function provided by the system that yields a visible result for an actor.

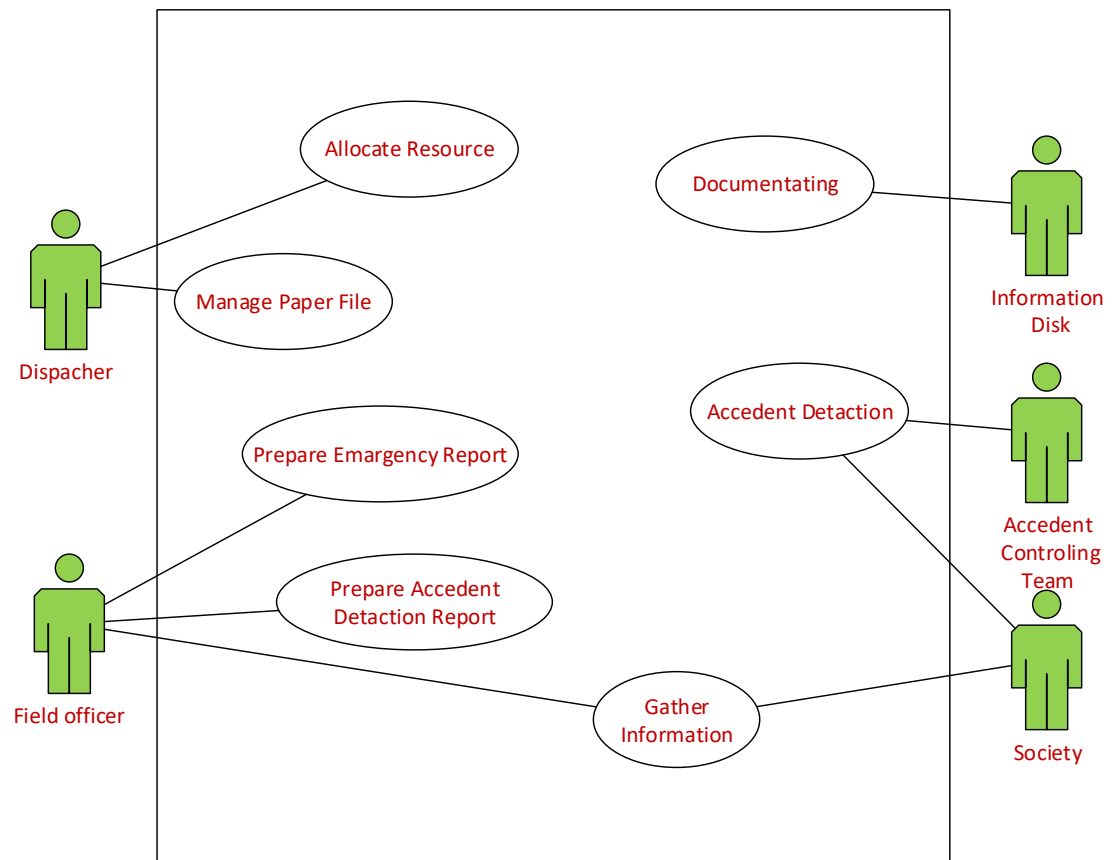


Figure 1: Use case Diagram of existing system

Participating Actors

1. Dispatcher or Dispatcher
2. Information Desk
3. Accident controlling team
4. Field Officer
5. Society

2.9.2 Essential User Interface Prototyping

Accident Investigation Report Form

EMPLOYEE DETAILS

Name: _____ Position: _____

Address: _____

INJURY DETAILS

Date of accident: _____ Time: _____ Date Reported: _____ Time: _____

Date ceased work: _____ Time: _____ Supervisor: _____

Time lost (to date): _____ Time lost (anticipated overall) _____

Medical Treatment required:

Date of incident: _____ Time: _____ AM/PM

Accident/Incident Report Form

Name of injured person: _____

Phone

Number(s): _____

Date of birth: _____ Male _____ Female _____

Who was injured person?(circle one) Passenger System Employee

Type of injury: _____

Details of incident: _____

Injury requires physician/hospital visit? Yes ____ No ____

Name of physician/hospital: _____

Address: _____

Physician/hospital phone number: _____

Signature of injured party

Date

*No medical attention was desired and/or required.

Signature of injured party

Date

Figure 2: Essential User Interface Prototyping

2.9.3 Essential User Interface Prototyping flow diagrams

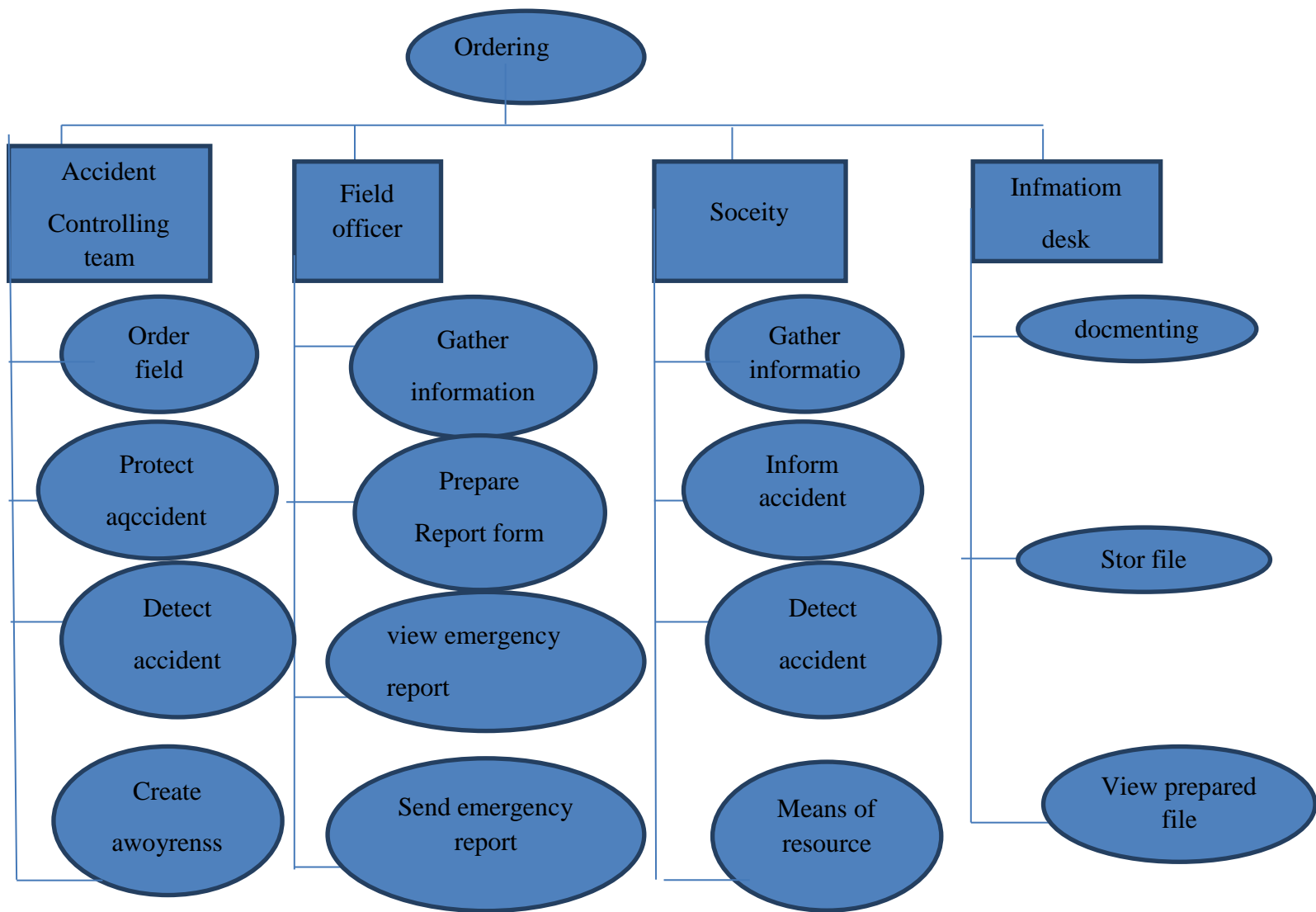


Figure 3:User Interface Prototyping of flow diagram

2.9.4 Domain modeling with class responsibility collaborator (CRC)

| <i>Dispatcher <<Actor>></i> | |
|---|---|
| <i>Fname</i> <i>Lname</i> <i>Age</i> <i>Gender</i> <i>Allocate resource ()</i> <i>Manage paper file ()</i> <i>View request ()</i> | <i>information desk</i> <i>field officer</i> |

Table 7: Class Responsibility Collaborator of Dispatcher

| <i>Field officer <<Actor>></i> | |
|--|----------------------------------|
| <i>Fname</i> <i>Lname</i> <i>Age</i> <i>Gender</i> <i>Gather information ()society</i> <i>Prepare report form ()</i> <i>view emergency report ()</i> | <i>Accident controlling team</i> |

Table 8: class responsibility collaborator of field officer

| <i>society <<Actor>></i> | |
|--------------------------------------|----------------------------------|
| <i>Fname</i> | |
| <i>Lname</i> | |
| <i>Age</i> | |
| <i>Gender</i> | |
| <i>Gather information ()</i> | |
| <i>Inform accident ()</i> | |
| <i>detect accident ()</i> | |
| | <i>field officer</i> |
| | <i>Accident controlling team</i> |

Table 9: class responsibility collaborator of society

| <i>Information desk <<Actor>></i> | |
|---|----------------------|
| <i>Fname</i> | |
| <i>Lname</i> | |
| <i>Age</i> | |
| <i>Gender</i> | |
| <i>docmmenting ()</i> | |
| <i>stor file ()</i> | |
| <i>view prepare file ()</i> | |
| | |
| | <i>dipatcher</i> |
| | <i>field officer</i> |

Table 10: class responsibility collaborator of Information desk

Chapter Three

System Analysis (Modeling the Proposed System)

3.1 Introduction

This phase helps to know what the system should do. You cannot successfully build a system if you don't know what it should do. The greatest risk during this stage is that many people don't want to invest to elicit requirements instead they want to jump into right programming. Your Subject Matter Experts (SMEs) have their usual jobs to do and don't have the time to invest. More over, your developers want to get into the "real work" of coding and senior managers want to see some progress on the project, which usually means they want to see some code written. Here more time should be invested otherwise it's risky (your effort here pay off in the long run)

3.2 Modeling proposed systems

Participant Actors

Dispatcher: has the following responsibilities:

- ❖ Has direct access to the database
- ❖ Notifying field officer that it provide the report
- ❖ Allocating resource based on the emergency report come from field officer
- ❖ Announcing team to detect accident by having allocated resource
- ❖ Managing user account

Accident controlling team: has the following responsibilities:

- ❖ Generate accident detection report which includes the process of accident control and effect of the accident.
- ❖ Studying cause of the accident

Field officer: has the following responsibilities:

- ❖ Gathering information about the accident from the society.
- ❖ Generate emergency report
- ❖ Updating the report if any information is received

Society: has the following responsibilities:-

- ❖ Informing occurrence and cause of the accident
- ❖ Participating on detection of the accident
- ❖ Request for support to suffer from the accident

3.2.1 System use case diagrams

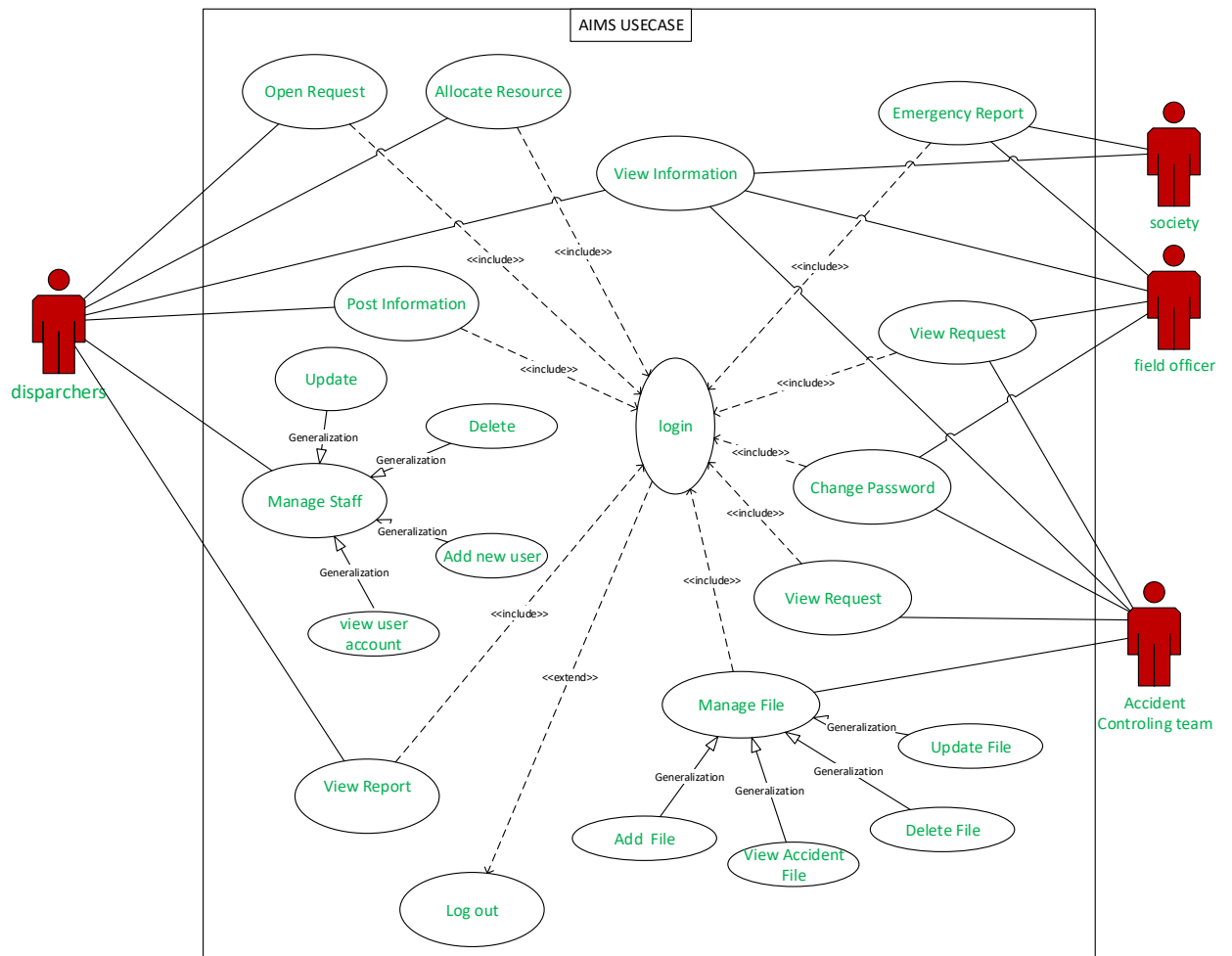


Figure 3: use case diagram of proposed system

3.2.2 Use case Description

Use case description provides critical information needed to understand in what context the use cases are and briefly explain how the functionalities precede using natural language in a step wise manner. Here is the use case description for kombolcha city police station Accident information management system.

Use case: Login

| | | |
|------------------------------|--|----------------------|
| Use case Name | Login | |
| UC_ID: | UC_01 | |
| Actor: | Dispatcher, field officer, accident controlling team, Information Desk | |
| Description: | This use case is used to ensure security for login into the system | |
| Precondition: | The user must have at least correct username and password. | |
| Flow Event: | Actor action | System response |
| | <p>Step1: User has to write url of the system.</p> <p>Step3: by selects account type user fills his or her username and password.</p> <p>Step4: click login button.</p> <p>Step6: the User gets access the system.</p> | 2:display home page. |
| Post condition | The main page will be displayed then user gets access to its privilege and after finishing his/her work he can logout | |
| Alternative course of action | <p>If they user is not authorized</p> <p>A.6: The system gives a conformation that is wrong username or password</p> | |

Table 11:Login description

Use case: Adding user

| | | |
|----------------|--|--|
| UC_ID: | UC_02 | |
| Actor: | Dispatcher | |
| Description: | It describes how to add a new user or account record in the system. | |
| Precondition: | the user should have logged in as Dispatcher | |
| Flow Event: | Actor action | System response |
| | <p>Step1: the dispatcher clicks on add user button</p> <p>Step3: the dispatcher enters the new user name, account type, Password and reenter password to the system</p> <p>Step 4: the dispatcher submits the new user information.</p> <p>Step7:the dispatcher tells the category, user name and password to the user</p> | <p>step2:the system displays the form</p> <p>Step5: the system validates the new user detail.</p> <p>Step6: the system save the user detail to the database.</p> <p>step7:the system displays successful message of adding new user</p> <p>Step8:the system ends</p> |
| Post condition | The new user information are added to the recorded | |

Table 12:adding user use case

Use case: updating user account

| | | |
|--------------------------|---|--|
| UC_ID: | UC_03 | |
| Actor: | Dispatcher, field officer and accident control team | |
| Description: | It describes how the dispatcher (field officer or accident control team) modify the user database . | |
| Precondition: | the user should have logged | |
| Flow Event: | Actor action | System response |
| | <p>Step1: the Administrator wants to update an account and he/she login to the system.</p> <p>Step2: the Administrator inserts account _type, username, password, and other user information.</p> <p>Step3: the administrator submits the data.</p> | <p>Step4: the system checks the new account information with the existing account in the database. Step5: the system save the new account to the database.</p> <p>Step6: the updating process ends</p> |
| Post condition | The system modifies the records with the new entered data. | |
| Alternate course action: | <p>5.1: the system doesn't save the new account to the system database 5.2: it displays a fill again message.</p> <p>5.1: the system doesn't save the new account to the system database 5.2: it displays a fill again message.</p> <p>5.1: the system doesn't save the new account to the system database 5.2: it displays a fill again message.</p> | |

Table 13:updating user account use case

Use case:-delete user account

| | | |
|-----------------------------|--|---|
| UC_ID: | UC_04 | |
| Actor: | Dispatcher | |
| Description: | It describe how the dispatcher removes records of system user database. | |
| Precondition: | the user should have logged in as Dispatcher | |
| Flow Event: | Actor action | System response |
| | <p>Step1: the administrator wants to delete the account and he/she login to the system.</p> <p>Step2: the administrator selects the delete button.</p> <p>Step4:the administrator enters the account type and username of the user</p> <p>Step7: the administrator selects the yes option.</p> | <p>step3:The system display a form</p> <p>Step5: the system checks the entered information with the existing account in the database</p> <p>Step6: the system sends message “Do you want to delete?” to the administrator</p> <p>Step8: the system delete the account from the system. Step 9 the use case ends</p> |
| Post condition | The system removes the user details from the record | |
| Alternate course of action: | <p>5.1: the system displays try again message.</p> <p>5.2:the system displays empty form</p> <p>7.1: the system ends if he/she selects no.</p> | |

Table 14:delete user account use case

Use case updating record

| | | |
|--------------------------|--|--|
| UC_ID: | UC_05 | |
| Actor: | Dispatcher | |
| Description: | It describe how the dispatcher removes records of system user database. | |
| Precondition: | the user should have logged in as Dispatcher | |
| Flow Event: | Actor action | System response |
| | Step1:the officer open step3: the officer add the accident id or number step4: click on search button step7: The officer edits the form. step8: The user clicks on Update button. step11: the officer selects the yes option step14: end of use case | step2: The system will display search box step5: The system will check the accident id step6: The system will display searched result step9: The system checks the entered information step10: The system sends message” does u want to update?” step12: The system updates the information step13: the system displays successful message of updating |
| Post condition | The system saves the modified record to the database. | |
| Alternate course action: | 6.1: displays “try again” message. 6.2: the system will display empty search box 11.1: if the investigative officer select the no option, the system displays ‘Updating aborted’ message. | |

Table 15: updating record use case

Use case: deleting records

| | | |
|----------------|---|---|
| UC_ID: | UC_06 | |
| Actor: | Dispatcher, information desk | |
| Description: | It is for dropping the content of the database. | |
| Precondition: | the user should have logged in as Dispatcher | |
| Flow Event: | Actor action | System response |
| | <p>Step1: the administrator wants to delete the record and he/she login to the system.</p> <p>Step2: the administrator selects the delete button.</p> <p>Step4: the administrator enters the accident type and accident number.</p> <p>Step7: the administrator selects the yes option.</p> | <p>step3:The system display a form</p> <p>Step5: the system checks the entered information with the existing account in the database</p> <p>Step6: the system sends message</p> <p>“Do you want to delete?” to the administrator</p> <p>Step8: the system delete the recorder from the system. Step 9 the use case ends</p> |
| Post condition | The system removes the user details from the record | |

Table 16: deleting record use case

Use case: Adding record

| | | |
|----------------|---|--|
| UC_ID: | UC_07 | |
| Actor: | Accident controlling team | |
| Description: | It describes how to add a new files or record in the system. | |
| Precondition: | the user should have logged in as accident controlling team | |
| Flow Event: | Actor action | System response |
| | <p>Step1: the accident controlling team clicks on add record button</p> <p>Step3: the accident controlling team enters the new records, data type, date and location to the system</p> <p>Step 4: the accident controlling team submits the new record information.</p> <p>Step7:the accident controlling team tells the category, file name and date etc to the user</p> | <p>step2:the system displays the form</p> <p>Step5: the system validates the new records detail.</p> <p>Step6: the system save the records detail to the database.</p> <p>step7:the system displays successful message of adding new record</p> <p>Step8:the system ends</p> |
| Post condition | The new record information are added to the database | |
| Alternative | | |

Table 17: adding record use case

USE CASE: Emergency report

| | | |
|-------------------------|--|---|
| Use Case Name | Emergency report generate | |
| UC_ID: | UC_08 | |
| Actor: | Field officer, society | |
| Description: | There must be accident and collected information about it.. | |
| Precondition: | There must be accident and collected information about it. | |
| Flow Event: | Actor action | System response |
| | Step1: The user open emergency form Step3 The use write in the report form. Step4:next click the emergency report button | Step2: system display the emergency report form. Step5: the system check correctly write necessary information. Step6: displays successful message to user. Step7:send emergency report to Dispatcher. Step 8 |
| Post condition | The system generated the report and displays successful message | |
| Alternate course action | 5.1: if not correct display try again message. | |

Table 18: Emergency report use case**Use case:** Open incident

| | | |
|-------------------------|--|---|
| Use Case Name | Open incident | |
| UC_ID: | UC_09 | |
| Actor: | Dispatcher | |
| Description: | This is used to read the emergency report. | |
| Precondition: | The field officer must generate a new emergency report | |
| Flow Event: | Actor action | System response |
| | Step1: the user wants to see the incident and she/he login to system. Step2: The user select the incident page. Step4: user see the incident. Step5: Notify accident controlling team the accident Step 6 send the notification to field officer and society. | Step3: system display incident reports. Step 7: end use case |
| Post condition | Acknowledge field officer/society | |
| Alternate course action | 2.1: if not correct display try again message. | |

Table 19: open incident use case

USECASE: Accident detection

| | | |
|--------------------|---|--|
| Use Case Name | Accident detection | |
| UC_ID: | UC_10 | |
| Actor: | Accident controlling team, field officer and society | |
| Description: | This is handling of the accident by using allocated resource. | |
| Precondition: | Emergency report must be generated and resource must be available | |
| Flow Event: | Actor action | System response |
| | Step1: officer report the accident to dispatcher. Step2: the user wants to see the accident detection and she/he login to system. Step2: The user select the incident page. Step4: user see the incident. Step5: The dispatcher allocate resource and notify to accident controlling team. Step6: Accident controlling team protects the accident. | Step3: system display incident reports. Step 7:end use case |
| Post condition | Accident controlling team protects the accidents. | |
| Alternative action | | |

Table 20: accident detection use case

View posted information use case

| | | |
|----------------|--|---|
| Use Case Name | View posted information | |
| UC_ID: | UC_11 | |
| Actor: | Society/User | |
| Description: | This use case allows the user to see posted information's | |
| Precondition: | there should be posted information's | |
| Flow Event: | Actor action | System response |
| | <p>Step 1: the user wants to view the posted information's</p> <p>step 2: the user gets access to the system</p> <p>Step 3: clicks on view post info button</p> <p>step 5: the user view posted information's</p> <p>Step 6: the report process ends</p> | <p>Step 4: The system displays posted information's</p> |
| Post condition | the user views posted information's | |

Table 21: view posted information

View request use case

| | | |
|----------------|---|--|
| Use Case Name | View request | |
| UC_ID: | UC_12 | |
| Actor: | Accident controlling team,field officer | |
| Description: | This use case allows this actors to see request | |
| Precondition: | there should be request | |
| Flow Event: | Actor action | System response |
| | Step 1:the user wants to view the posted request step2:the user gets access to the system Step3:clicks on view post info button step5: the user view posted request Step 6: the view process ends | Step4:The system displays posted request |
| Post condition | the user views posted requests | |

Table 22: view request

View accident file use case

| | | |
|----------------|---|---|
| Use Case Name | View accident file | |
| UC_ID: | UC_13 | |
| Actor: | Accident controlling team | |
| Description: | This use case allows the user to View accident file | |
| Precondition: | there should be posted accident file | |
| Flow Event: | Actor action | System response |
| | <p>Step 1:the user wants to view the accident file</p> <p>step2:the user gets access to the system</p> <p>Step3:clicks on view accident file info button</p> <p>step5: the user view accident file</p> <p>Step 6: the view process ends</p> | <p>Step4:The system displays view accident file</p> |
| Post condition | the user views accident file | |

Table 23: View accident file

Change password use case

| | | |
|----------------|---|---|
| Use Case Name | Change password | |
| UC_ID: | UC_14 | |
| Actor: | Accident controlling team | |
| Description: | This use case allows the user to change password | |
| Precondition: | there should password | |
| Flow Event: | Actor action | System response |
| | <p>Step 1:the user wants to change password</p> <p>step2:the user gets access to the system</p> <p>Step3:clicks on change password button</p> <p>step5: the user view changed password</p> <p>Step 6: the changing process ends</p> | <p>Step4:The system displays changed password</p> |
| Post condition | the user access from systems | |

Table 24: Change password

USE CASE: *allocate resource*

| | | |
|----------------|--|--|
| Use Case Name | <i>allocate resource</i> | |
| UC_ID: | UC_15 | |
| Actor: | System administrator(dispatcher) | |
| Description: | This is for providing resources to detect the accident. | |
| Precondition: | The field officer must generate a new emergency report | |
| Flow Event: | Actor action | System response |
| | 1. Dispatcher opens incident 2. Send notification to field officer Check availability of resources | Step2: The system point to resource location |
| Post condition | Notify accident controlling team the accident and show resources to it. | |

Table 25: allocate resource use case

View report use case

| | | |
|----------------|---|---|
| Use Case Name | View report | |
| UC_ID: | UC_16 | |
| Actor: | Dispatchers | |
| Description: | This use case allows the dispatchers to View report | |
| Precondition: | there should be posted report | |
| Flow Event: | Actor action | System response |
| | <p>Step 1:the user wants to view the report</p> <p>step2:the user gets access to the system</p> <p>Step3:clicks on view report info button</p> <p>step5: the user view report</p> <p>Step 6: the view report ends</p> | <p>Step4:The system displays view reports</p> |
| Post condition | the user views report | |

Table 26: View report

Logout use case

| | | |
|----------------|---|--|
| Use Case Name | Logout | |
| UC_ID: | UC_17 | |
| Actor: | System administrator(dispatcher), field officer, and accident controlling team | |
| Description: | Logout and back to the login page. | |
| Precondition: | The System administrator, field officer, and accident controlling team should have Internet connection. | |
| Flow Event: | Actor action | System response |
| | Step 1: The user click logout button Step 3: end use case | Step 2: The system returns to login page |
| Post condition | The user will be out of the system or database | |

Table 27: logout use case

3.2.3 Sequence Diagram

A sequence diagram shows an interaction between objects arranged in time sequence. It models the dynamic aspect of the system. A sequence diagram is a type of interaction diagram because it describes how and in what order a group of objects works together. Sequence diagrams are sometimes known as event diagrams or event scenarios. A sequence diagram has two

dimensions. The vertical dimension shows the sequence of messages/calls in the time order that they occur; the horizontal dimension shows the object instances to which the messages are sent.

Sequence Diagram 1: Login

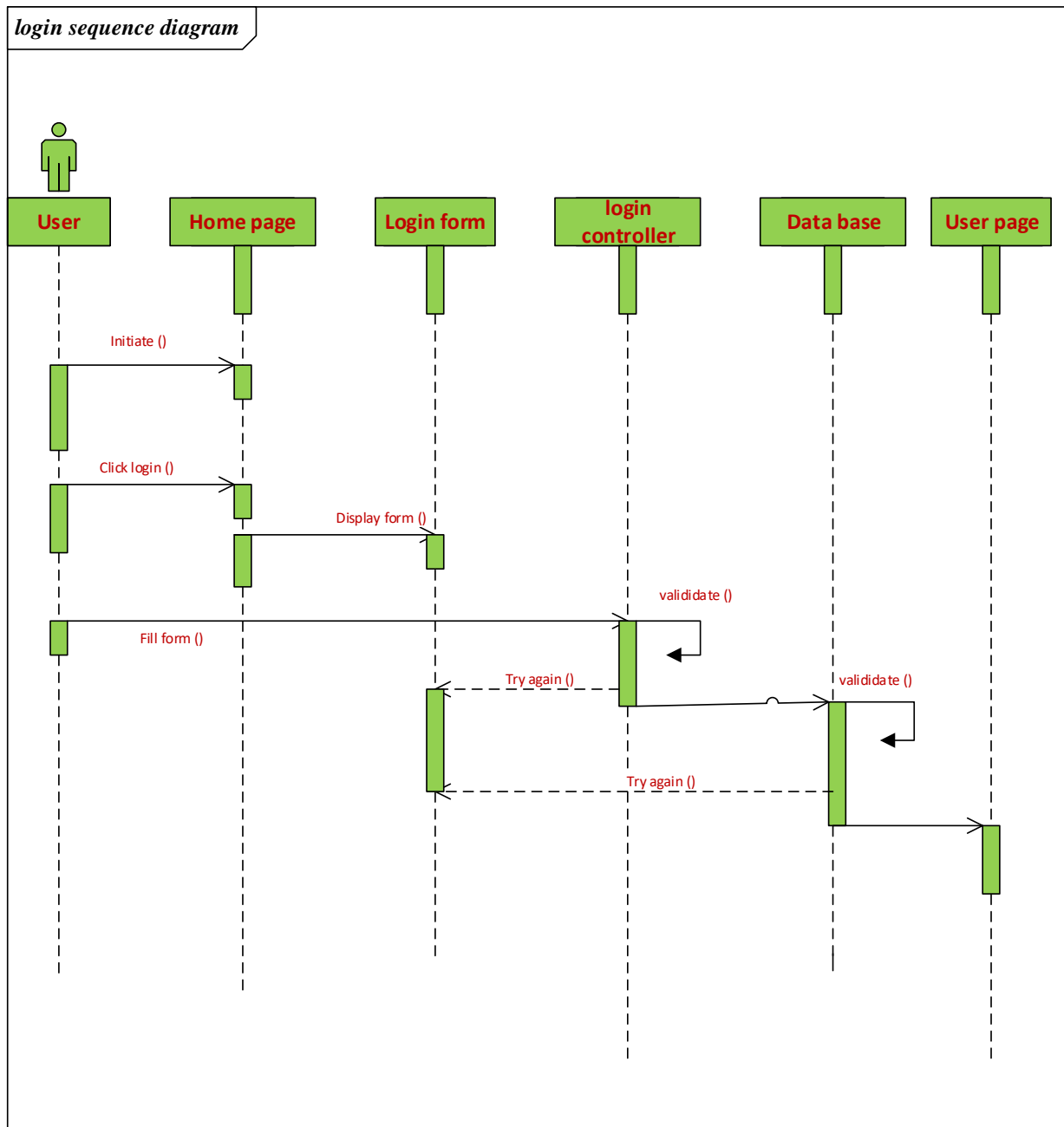


Figure 4: login sequence diagram

Sequence Diagram 2: Dispatcher

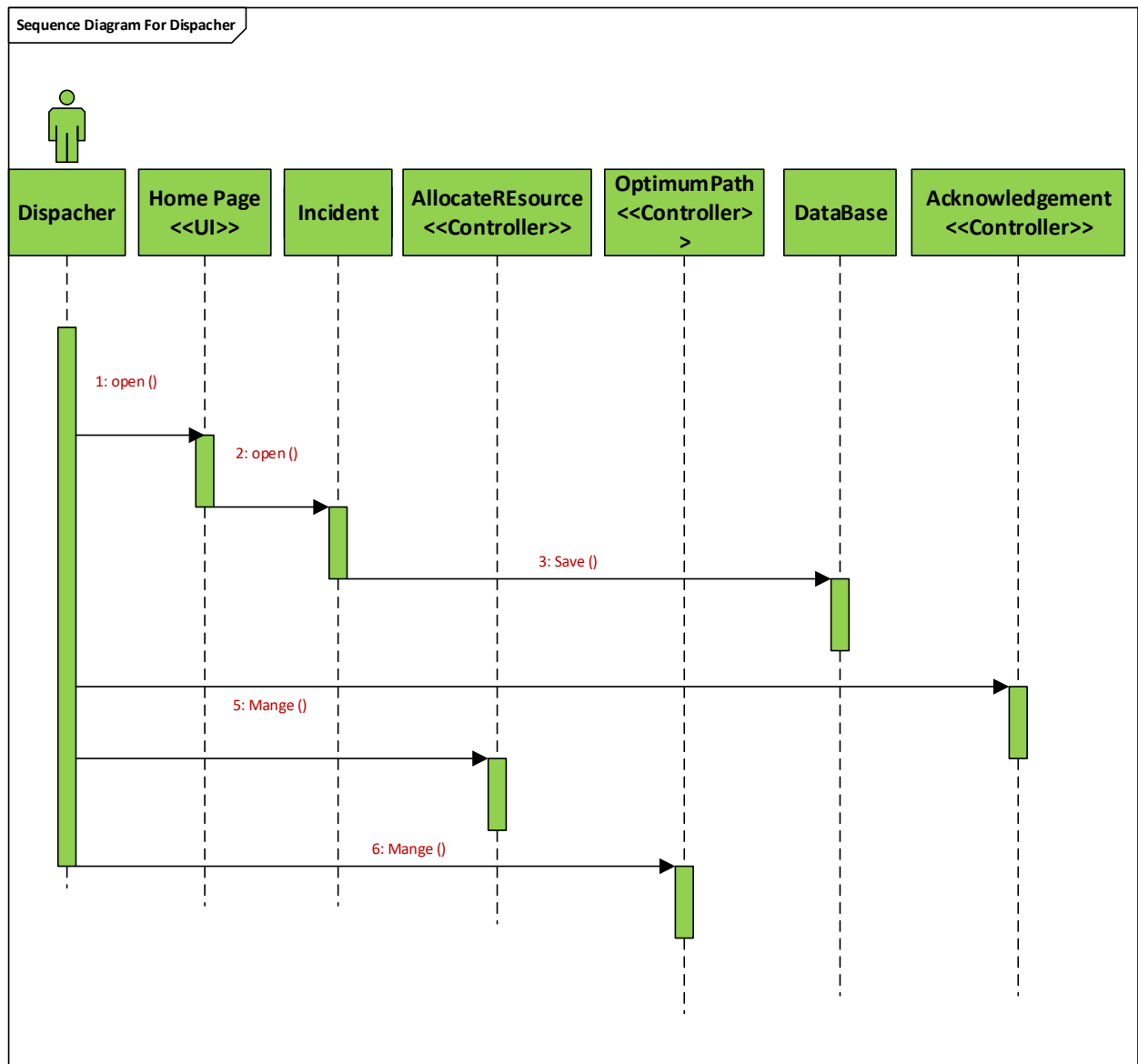


Figure 5: Dispatcher Sequence Diagram

Sequence Diagram 3: Updating Database

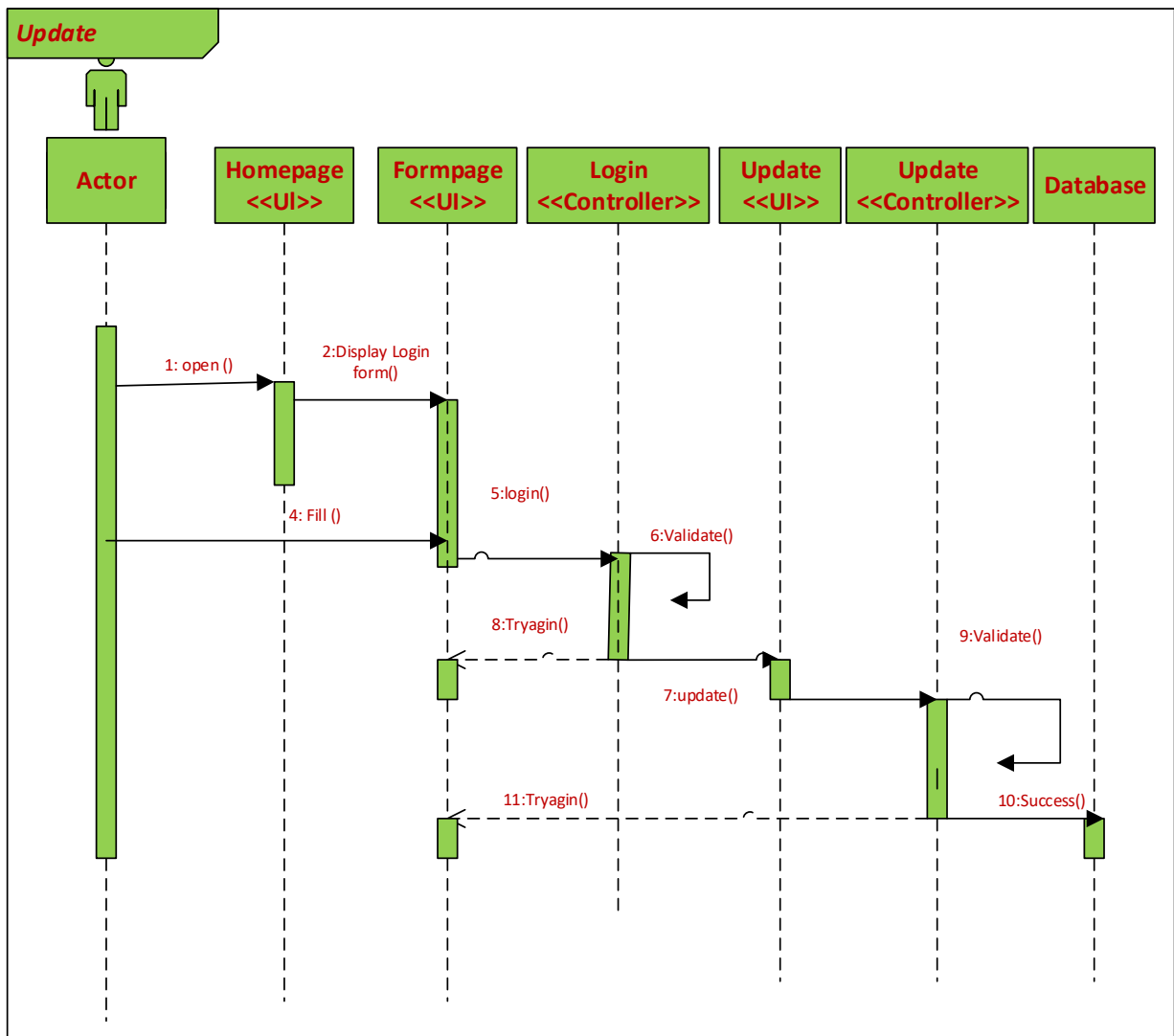


Figure 6: Updating Database Sequence Diagram

Sequence Diagram 4: Deleting Record

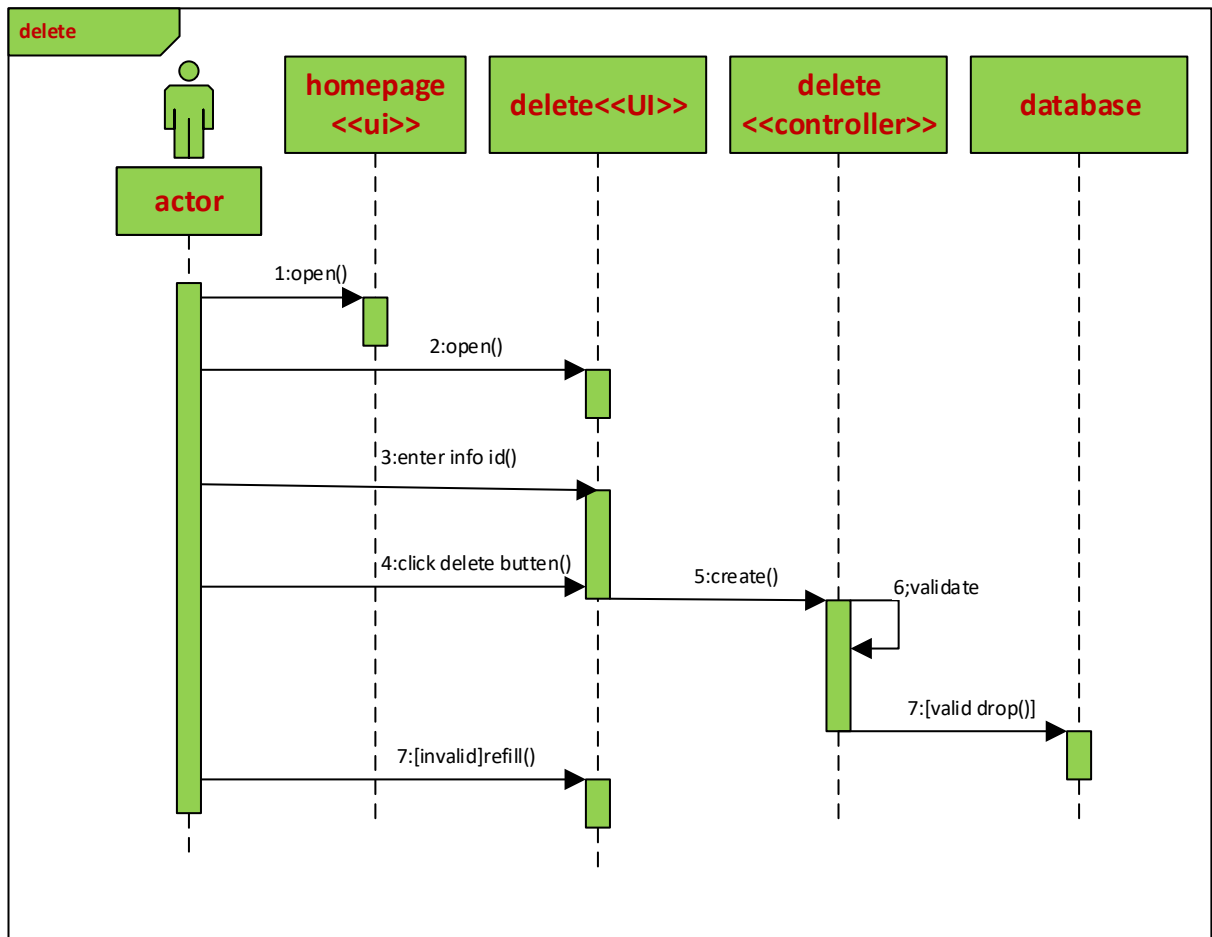


Figure 7: Deleting Record Sequence Diagram

Sequence Diagram 5: Generate Emergency Report

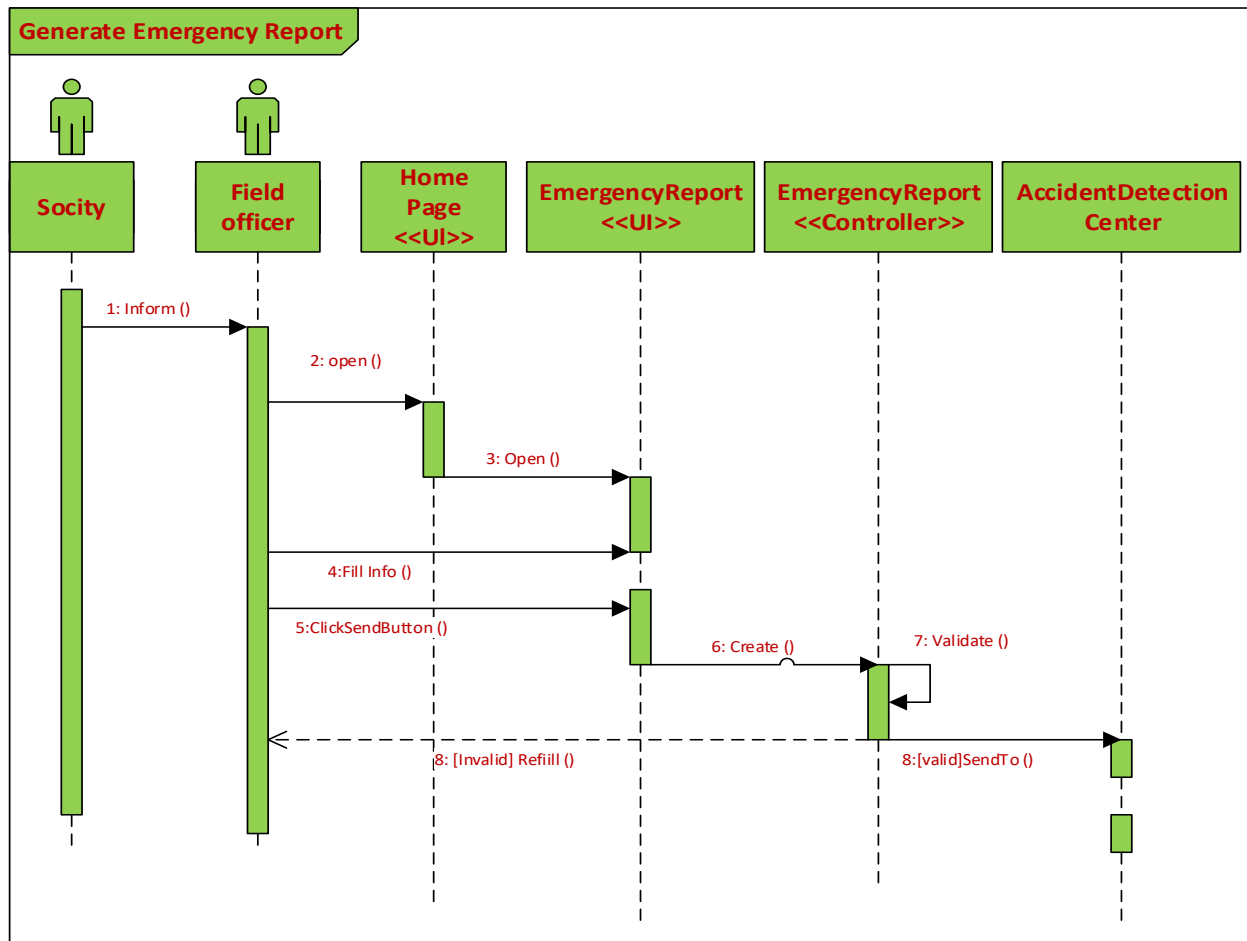


Figure 8: Accident Detection report Sequence Diagram

3.2.4 Activity Diagram

An activity diagram describes a system in terms of activities. Activities are states that represent the execution of a set of operations. The completion of these operations triggers a transition to another activity. They can be used to represent control flow (i.e., the order in which operations occur) and data flow (i.e., the objects that are exchanged among operations Log into the System.

Report Generation

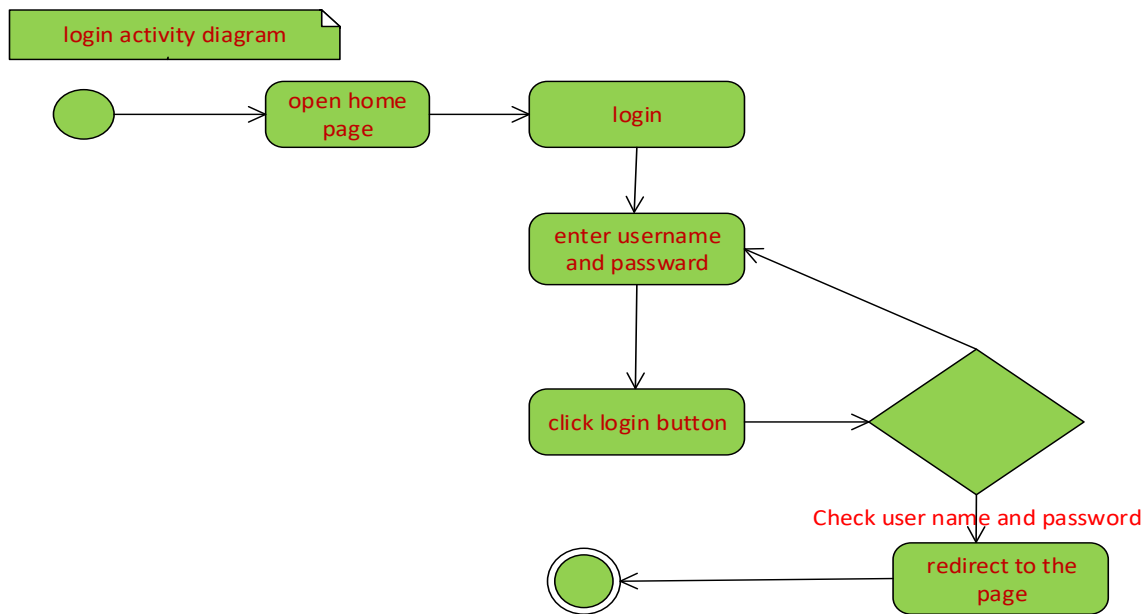


Figure 9: Report Generation

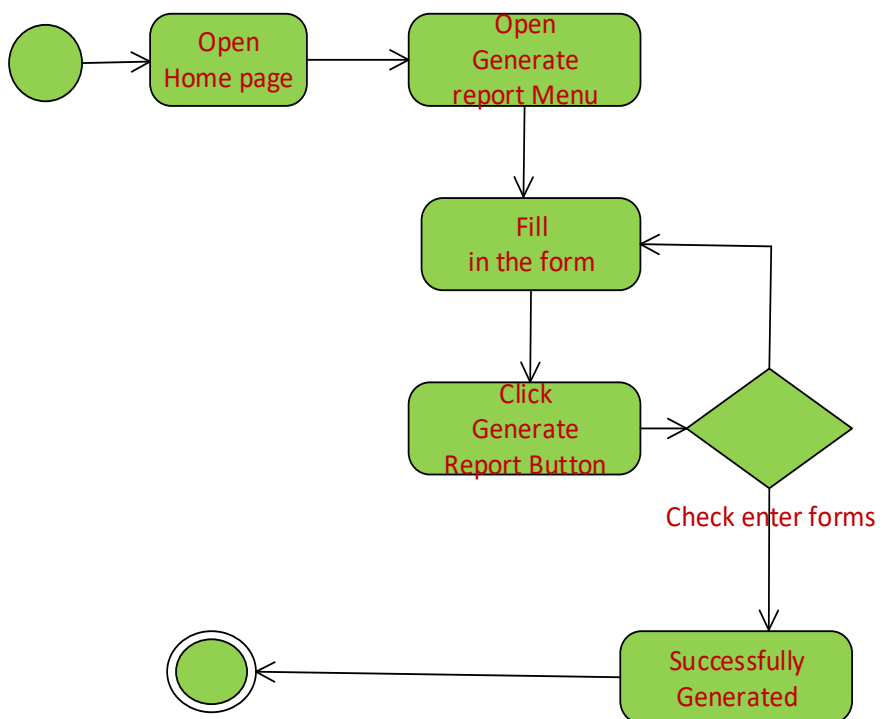


Figure 10: Login activity diagram

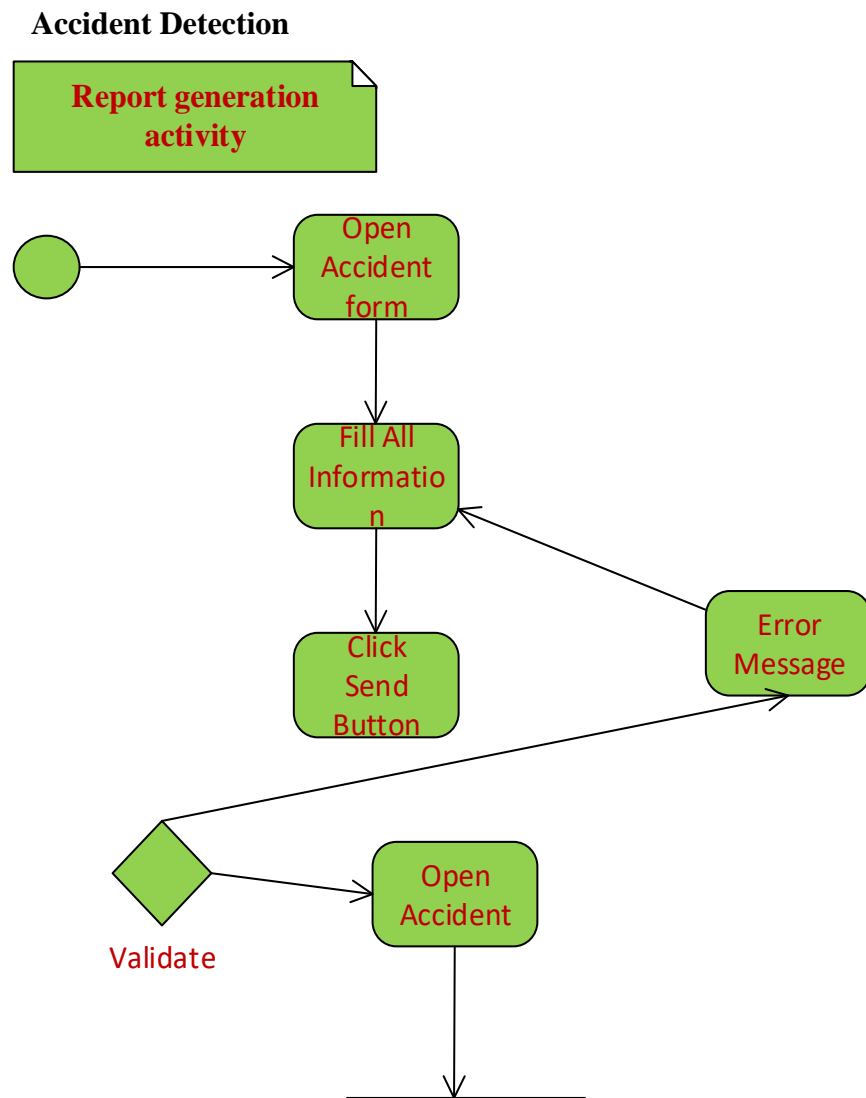


Figure 11: Report generation activity diagram

Update Activity Diagram

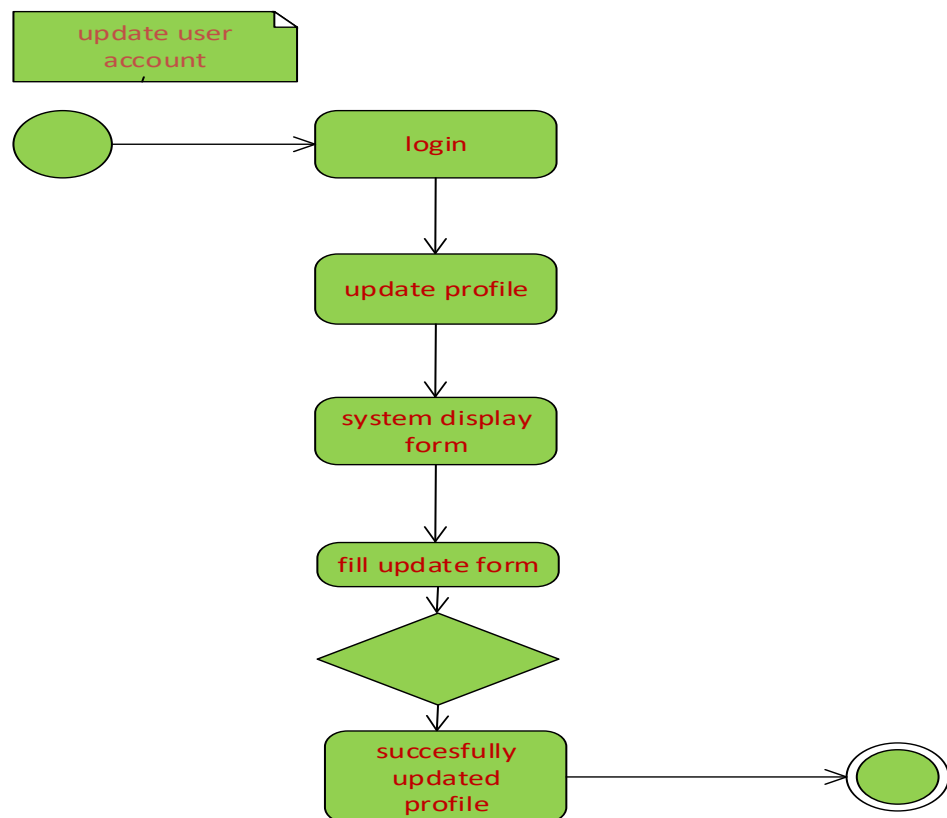


Figure 12: Update Activity Diagram

Resource Activity Diagram

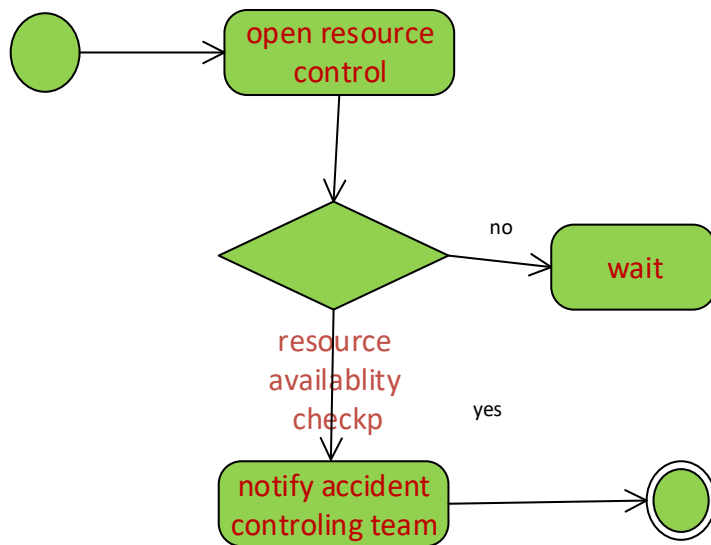


Figure 13: Resource Activity Diagram

Logout Activity Diagram

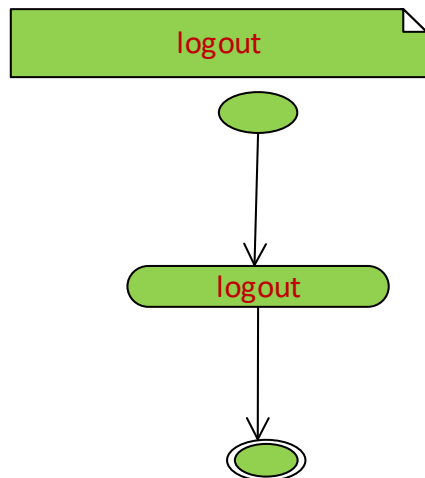


Figure 14: Logout Activity Diagram

3.2.5 Analysis level class diagram (conceptual modeling)

Class diagram is a static diagram. It represents the static view of an application. Class diagram is not only used for visualizing, describing, and documenting different aspects of a system but also for constructing executable code of the software application.

Class diagram describes the attributes and operations of a class and also the constraints imposed on the system. The class diagrams are widely used in the modeling of object oriented systems because they are the only UML diagrams, which can be mapped directly with object-oriented languages.

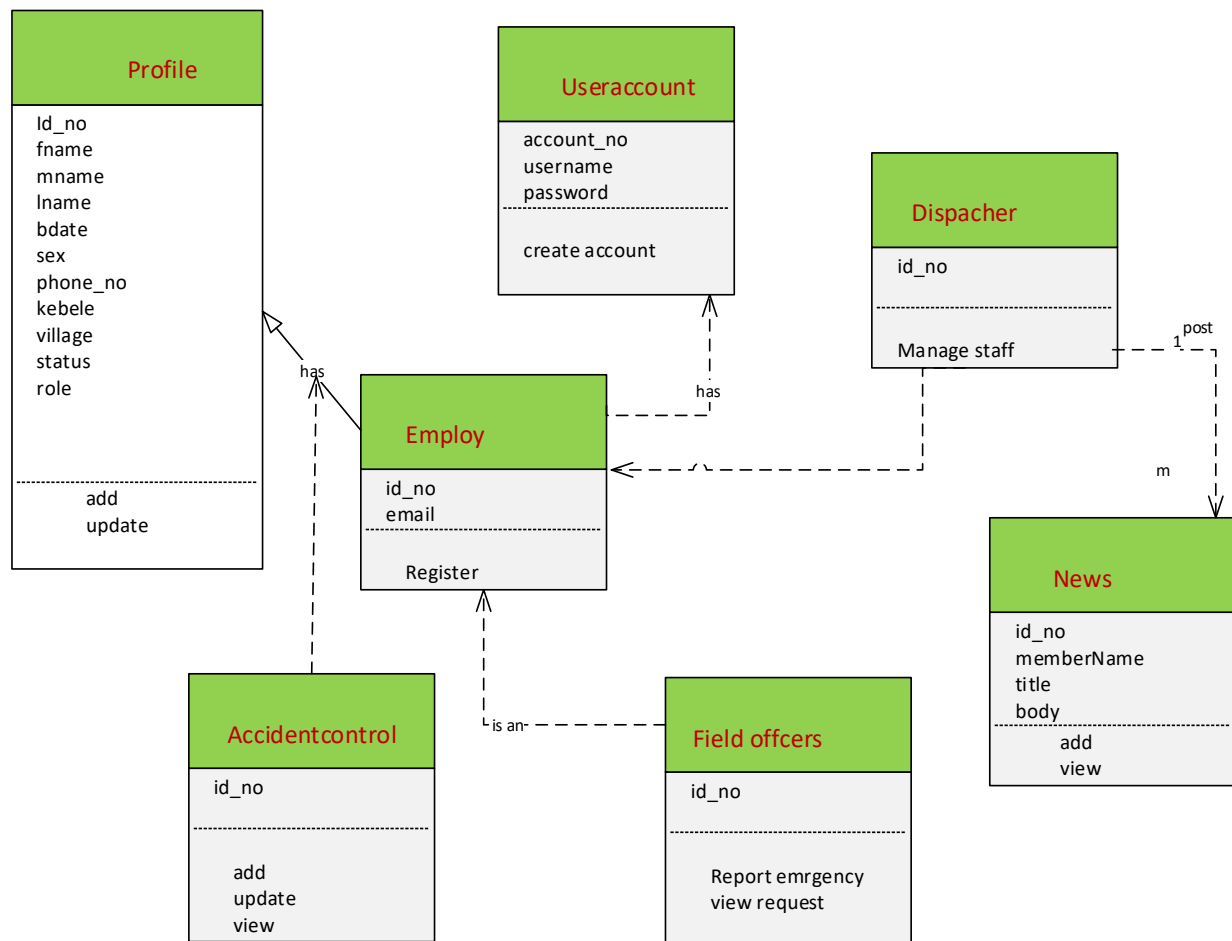
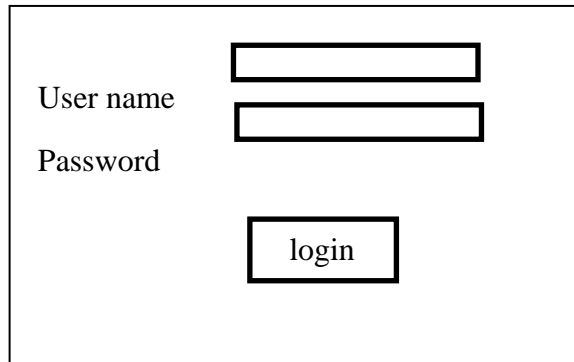


Figure 15: class diagram

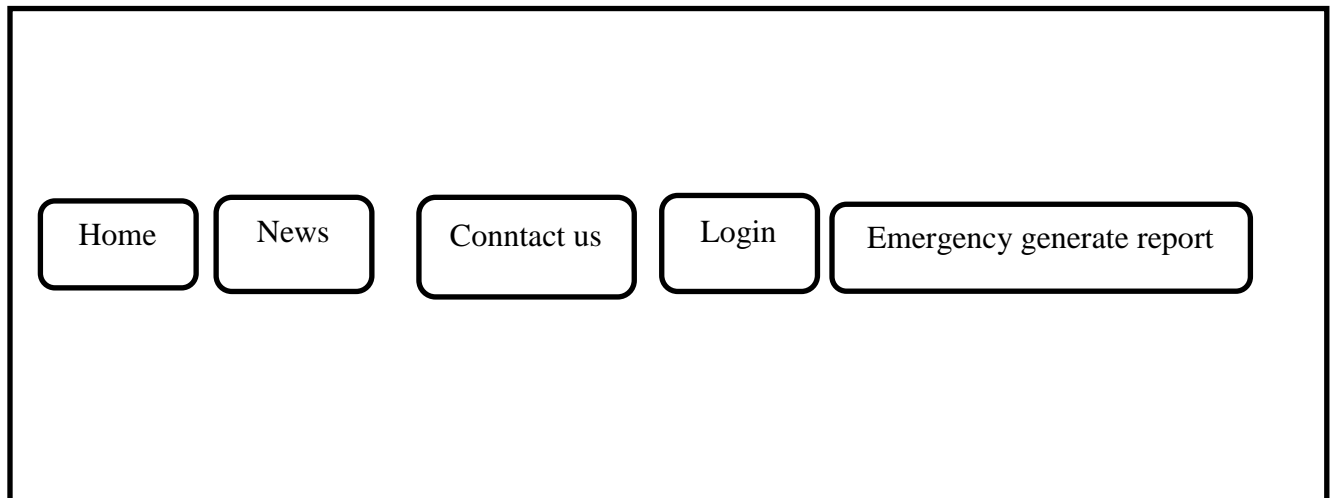
3.2.6 User Interface Prototyping

Login User interface Prototyping



A diagram of a login interface within a rectangular frame. On the left, the text "User name" is positioned above a horizontal input field, and "Password" is positioned above another horizontal input field. Below these two fields is a rectangular button with the text "login" centered inside it.

Home page prototyping



A diagram of a home page interface within a large rectangular frame. At the top, there is a horizontal navigation bar containing five rounded rectangular buttons. From left to right, the buttons are labeled: "Home", "News", "Conntact us", "Login", and "Emergency generate report".

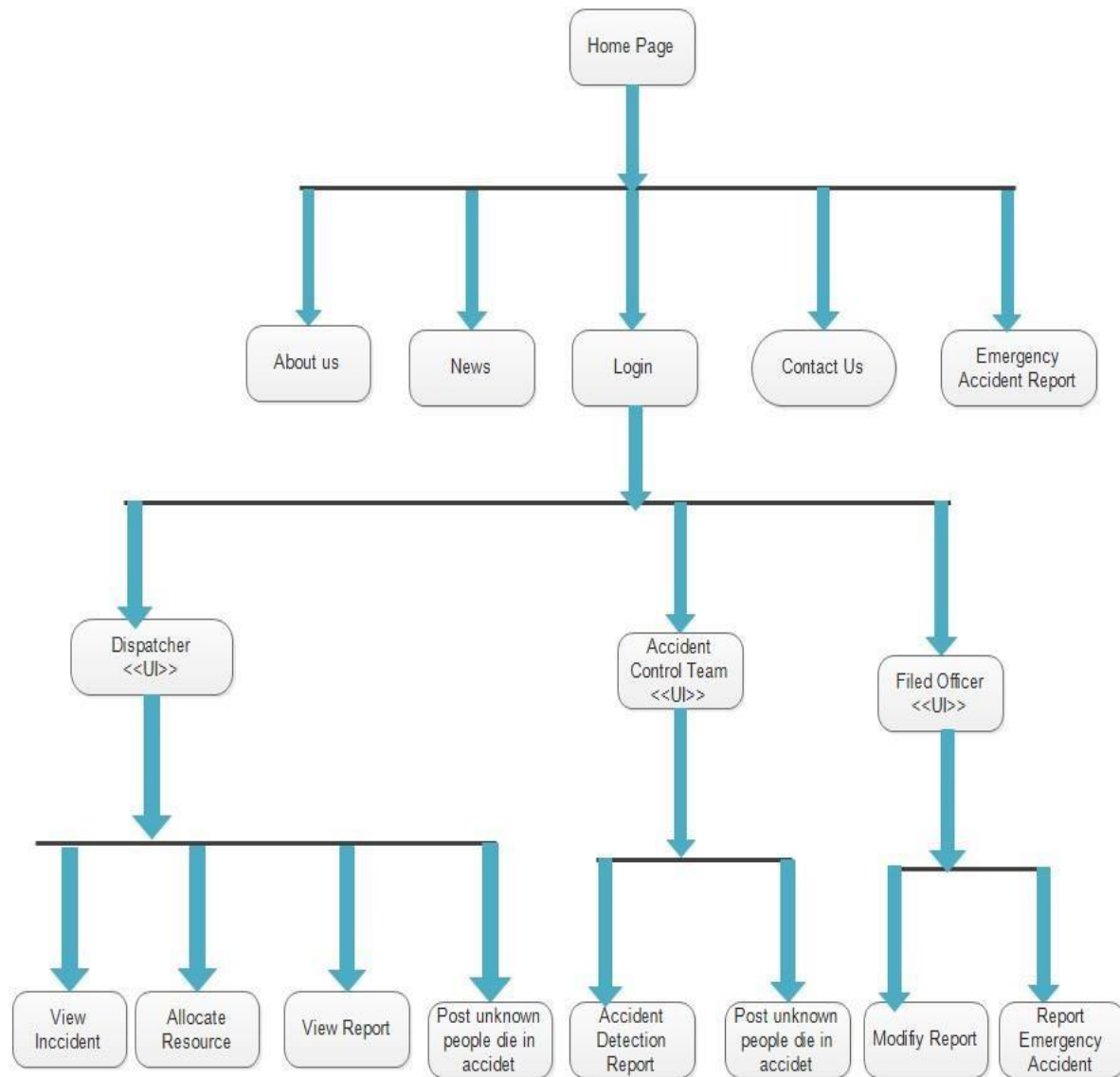


Figure 16: User Interface Prototyping

Chapter Four

System design

4.1 Introduction

System design is the transformation of the analysis model into a system design model. Up to now we were in the problem domain. System design is the first part to get the solution. This chapter focuses on transforming the analysis model account, the non-functional requirements and constraints described in the problem statement and requirement analysis sections discussed earlier. The purpose of designing is to show the direction how the system is built and to obtain clear and enough information needed to drive the actual implementation of the system. It is based on understanding of the model the software built on. The objectives of design are to model the system with high quality. Implementing of high quality system depend on the nature of design created by the designer. If one wants to change to the system after it has been put in to operation depends on the quality of the system design. So if the system is design effety, it will be easy to make changes to it.

4.1.1 Design goals

These describe the qualities of the system that we should optimize. Many design goals are inferred from the nonfunctional requirements or from the application domain. The new system is considered to be successful if it meets the following sets of criteria's:

- ❖ *User Interface:* The user interface of the system should be easy to use by each user of the system with little training.
- ❖ *Documentation:* System administrators and other users are provided with proper documentation about the software's features.
- ❖ *Performance:* The system should be able to serve a number of users which are expected to access it concurrently.
- ❖ *Error Handling and Extreme conditions:* The system should be robust enough to handle error conditions and continue with normal operations.
- ❖ *Availability:* The system availability should be available most of the time since it is handling emergency situations.
- ❖ *Security:* The system should prevent the sensitive data from unauthorized access.

- ❖ *Modifiable*: The system should be designed in Object Oriented language so that modification to some part of the system could not affect other parts.

4.2 Class type architecture

A common architectural strategy, some might call it a pattern, is to layer the architecture of a system into several layers/strata. All types of classes may interact with system classes. This is because your system layer implements fundamental software features such as inter-process communication (IPC), a service classes use to collaborate with classes on other computers, and audit logging, which classes use to record critical actions taken by the software. For example, if your user interface classes are running on a personal computer (PC) and your domain classes are running on an EJB application server on another machine, and then your interface classes will send messages to the domain classes via the IPC service in the system layer. This service is often implemented via the use of middleware.

- *Interface layer*

This layer wraps access to the logic of your system. There are two categories of interface class: user interface (UI) classes that provide people access to your system and system interface (SI) classes that provide access to external systems to your system. Java Server Pages (JSPs) and graphical user interface (GUI) screens implemented via the Swing class library are commonly used to implement UI classes within Java. Web services and CORBA wrapper classes are good options for implementing SI classes.

- *Domain layer*

This layer implements the concepts pertinent to your business domain such as Student or Seminar, focusing on the data aspects of the business objects, plus behaviors specific to individual objects. Enterprise Java Bean (EJB) entity classes are a common approach to implementing domain classes within Java.

- *Process layer*

The process layer implements business logic that involves collaborating with several domain classes or even other process classes.

- *Persistence layers*

Persistence layers encapsulate the capability to store, retrieve, and delete objects/data permanently without revealing details of the underlying storage technology.

- System layer

System classes provide operating-system-specific functionality for your applications, isolating your software from the operating system (OS) by wrapping OS-specific features, increasing the portability of your application.

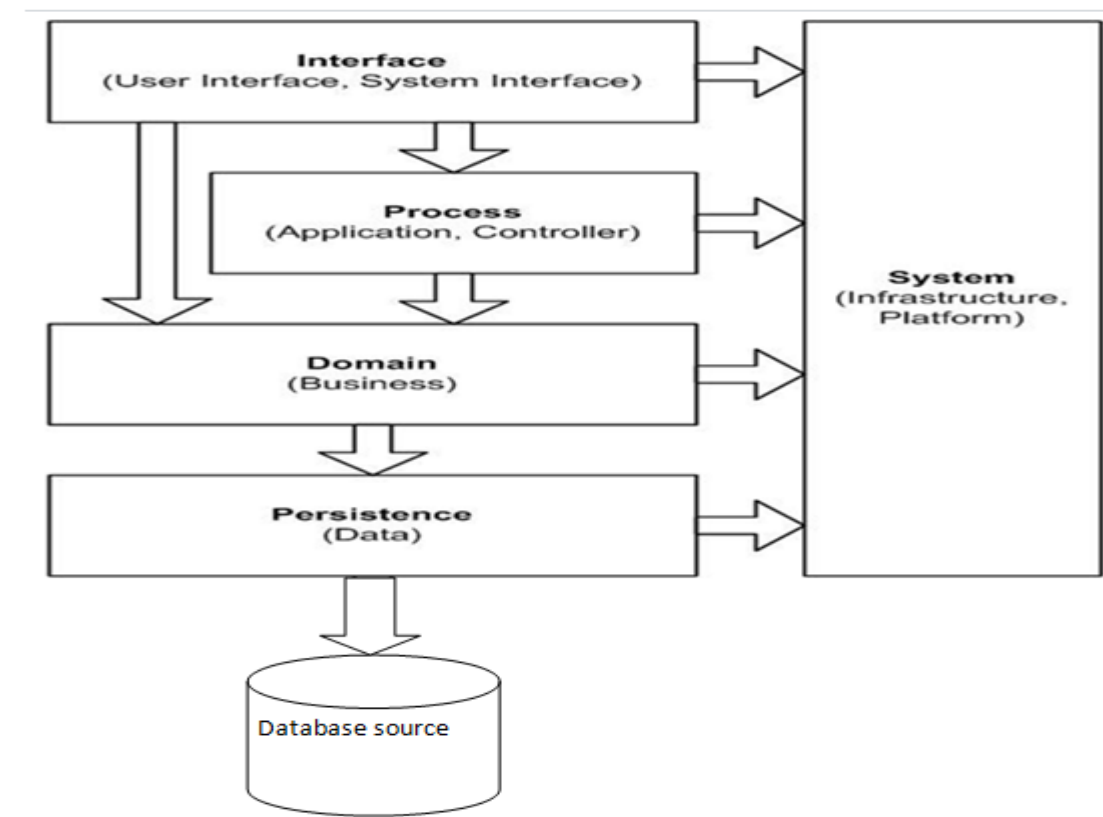


Figure 17: Class type architecture

4.3 Class modeling

Class diagram shows the static structure of data and the operations that act on the data, i.e. it shows the static structure of an object-oriented model the object class, their name.

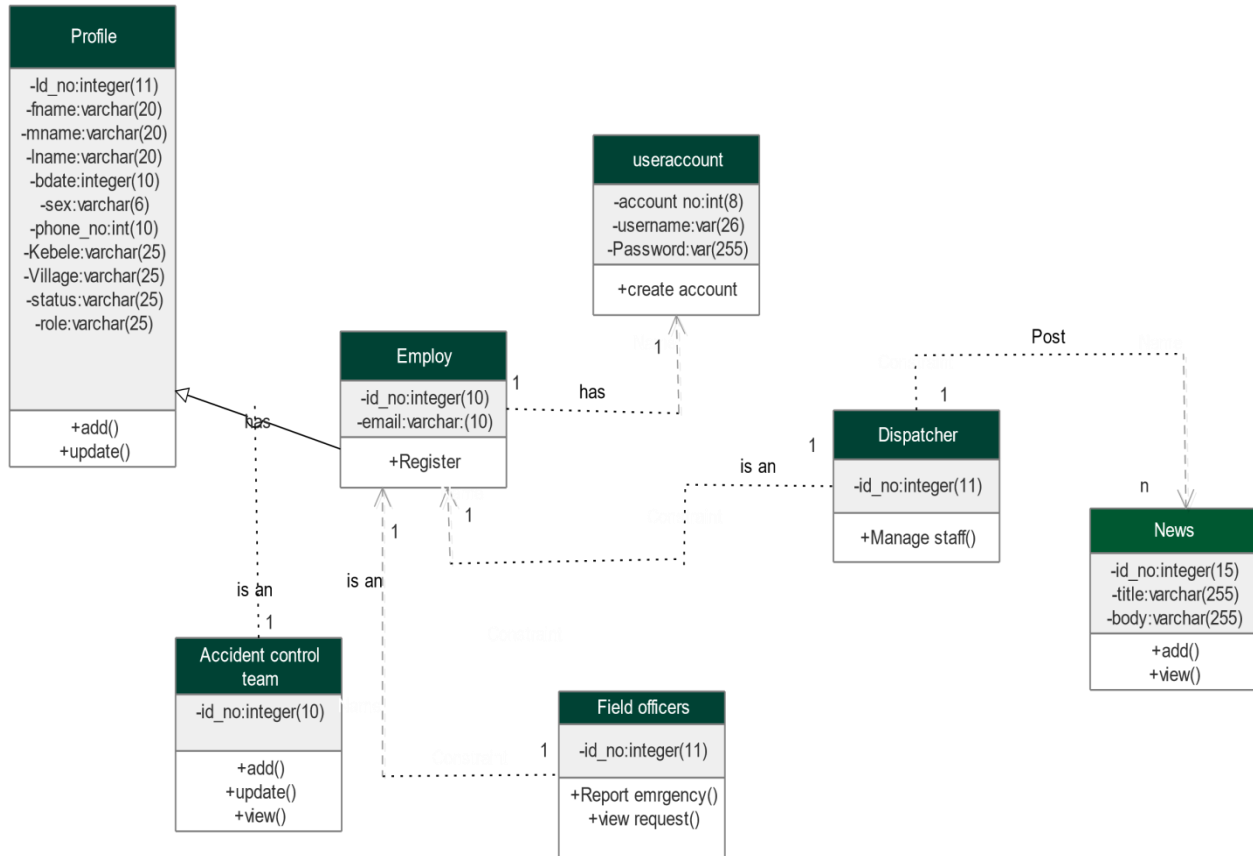


Figure 18: class diagram [1], [2]

4.4 State chart modeling

State chart diagram describes the flow of control of the KCPS accident management new system from one state to another state to describe the system dynamically. States are defined as a condition in which an object exists and it changes when some event is triggered. So the most important purpose of State chart diagram is to model life time of an object from creation to terminal.

1: View Report

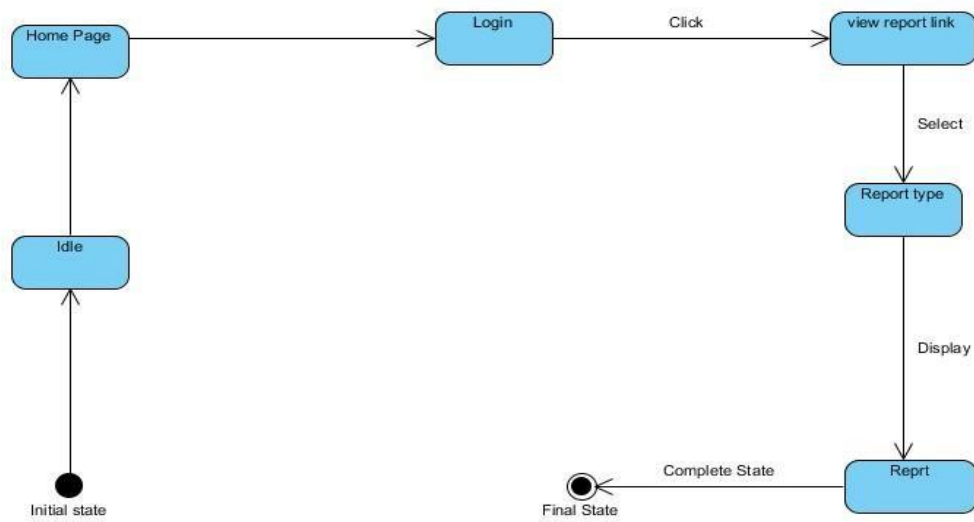


Figure 19: view report

2: Post information

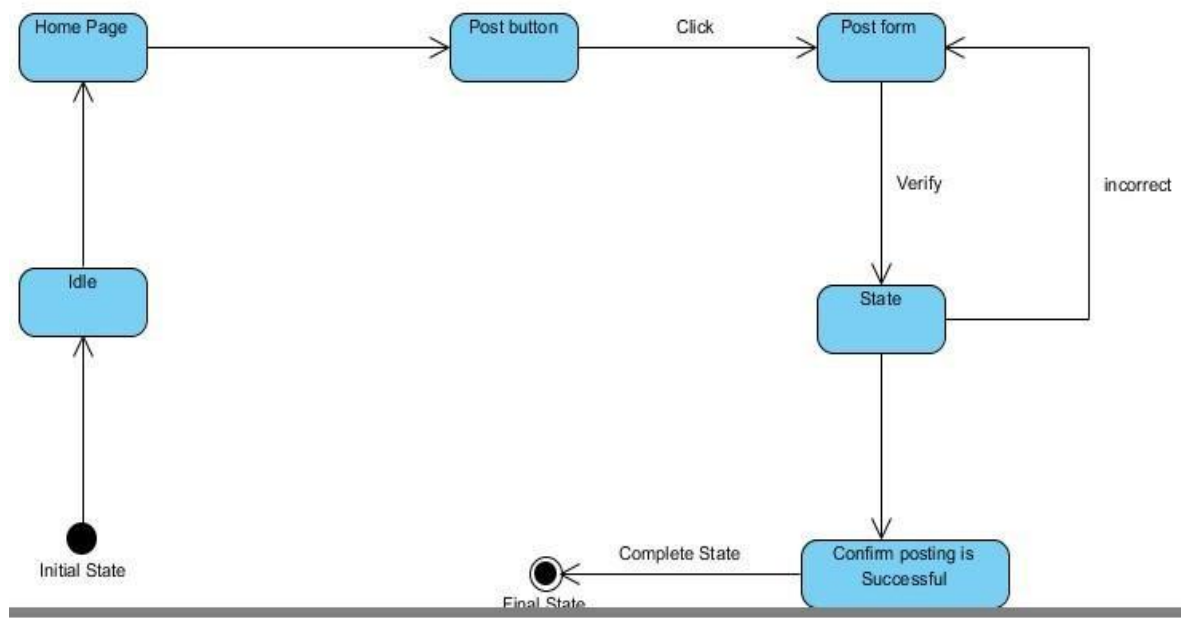


Figure 20: post information

4.5 Collaboration Modeling

Collaboration diagram shows the structural organization of objects that send and receive messages. Sequence and collaboration diagrams are jointly called interaction diagrams and they can be transformed one into another. The following are collaboration diagrams drawn for basic services of the system.

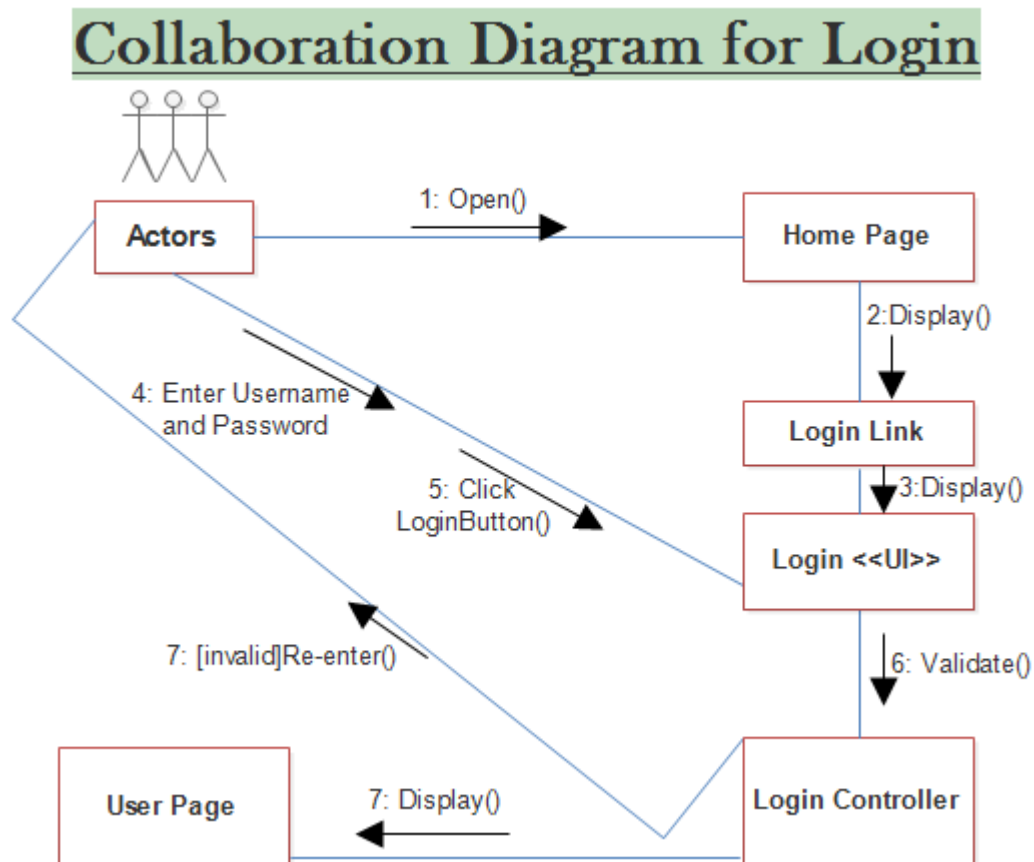


Figure 21: Login collaboration diagram

Collaboration Diagram for Emergency Report Generation

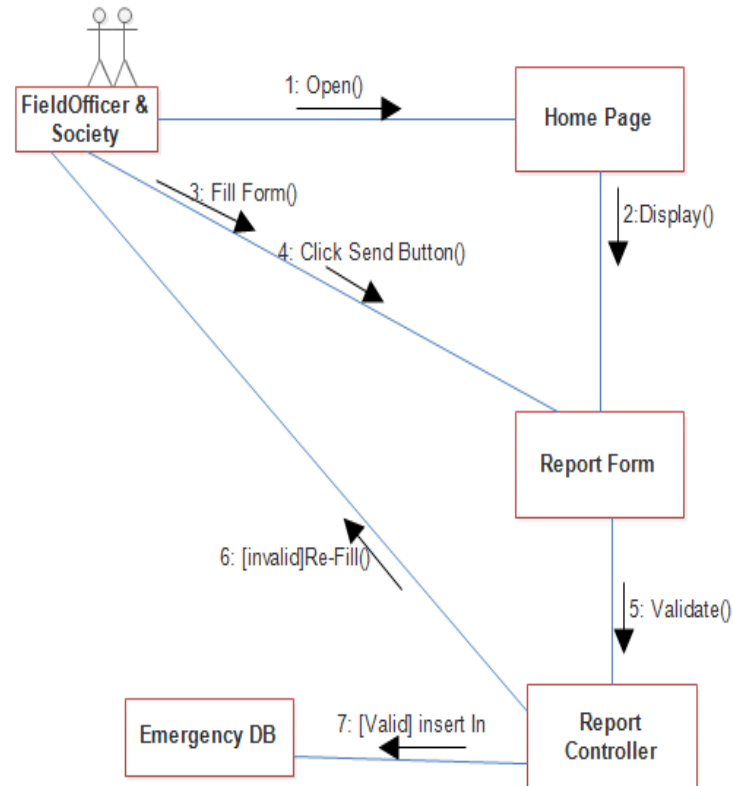


Figure 22: Collaboration diagram for emergency report

Collaboration Diagram for Resource Allocation

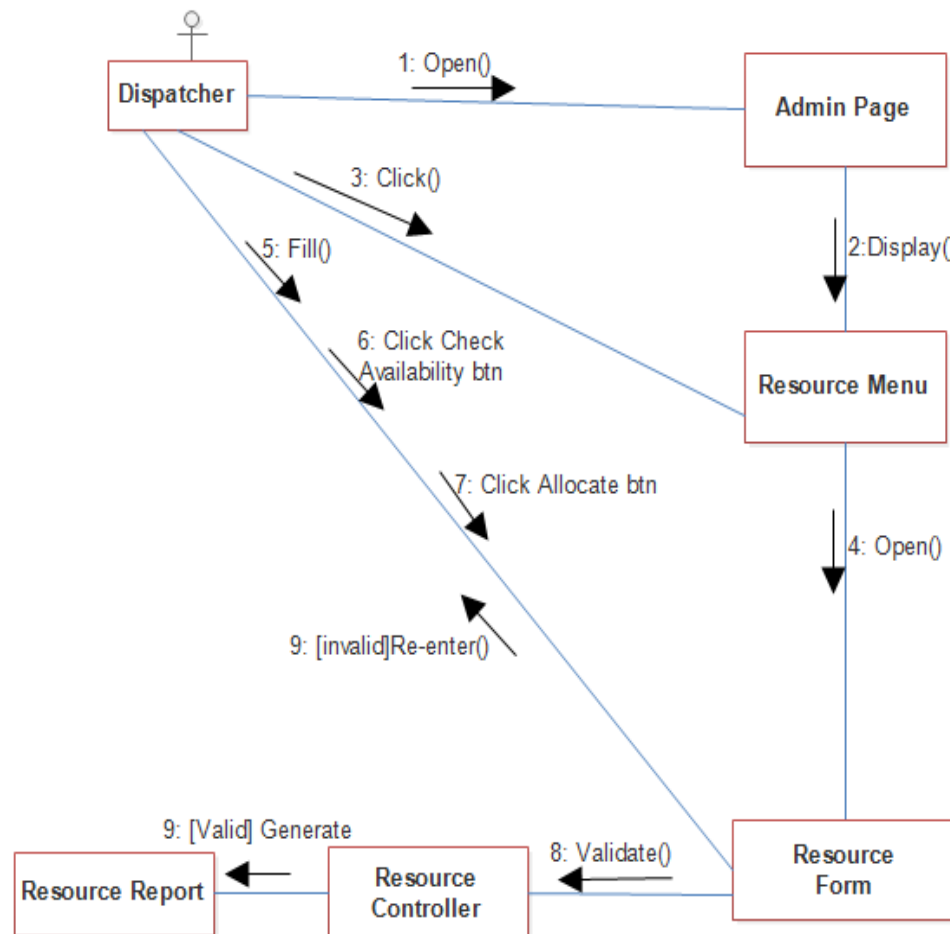


Figure 23: Collaboration diagram for resource allocate [4]

4.6 Component Modeling

By this Diagram, components of the system will be wired showing that there is relation among components, management of the system, database and operations performed on databases security issue. This in some extent shows which component or objects will be accessed by whom and what type of security infrastructures it is using Aniekwe Vivian Nkiruka - *August, 2012*. The component diagram of kombolcha police station accident management system is displayed below.

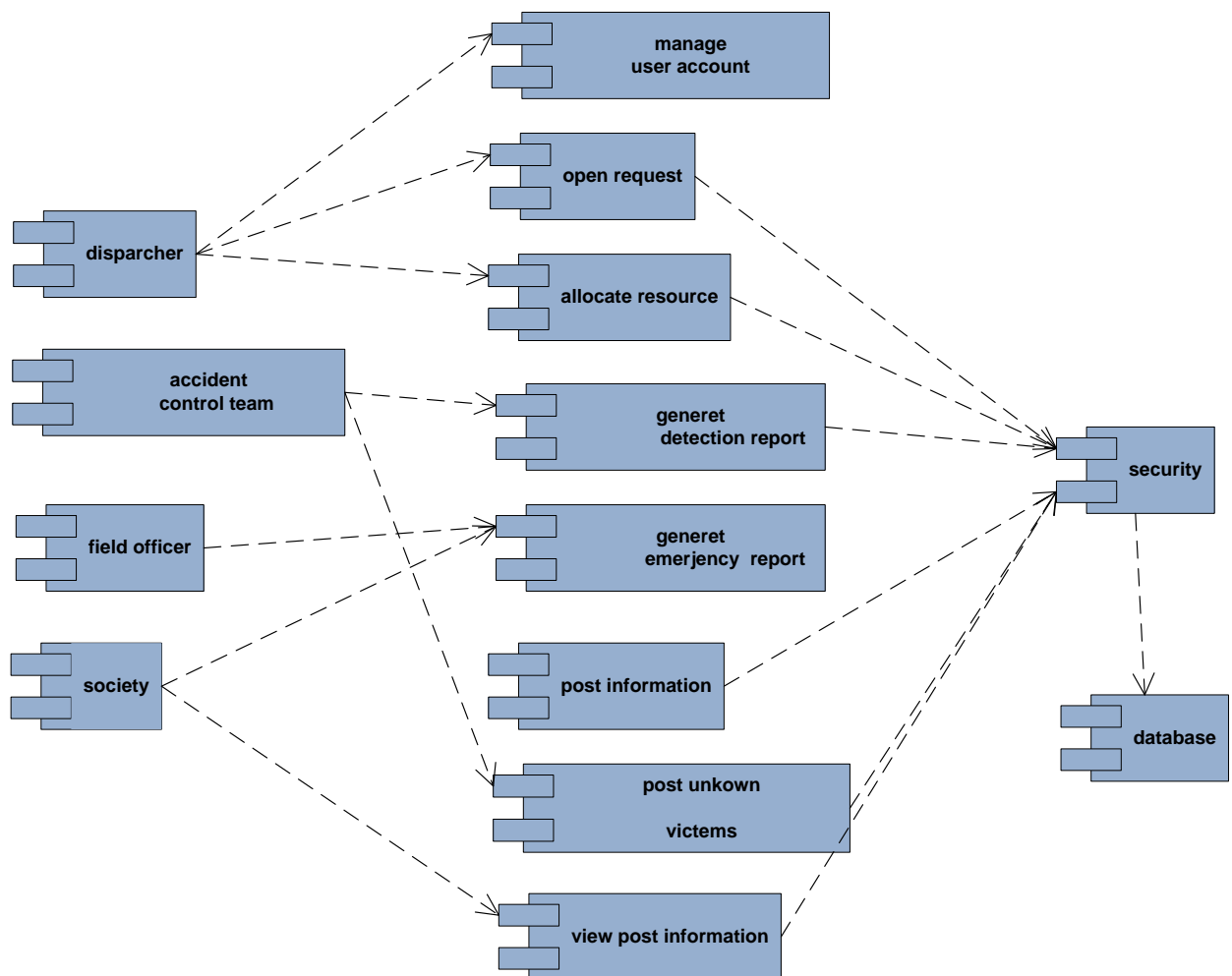


Figure 24: component diagram

4.7 Deployment modeling

Deployment diagrams model the physical architecture of a system, and it shows the relationships between the software and hardware components in the system and the physical distribution of the processing Aniekwe Vivian Nkiruka - August, 2012.

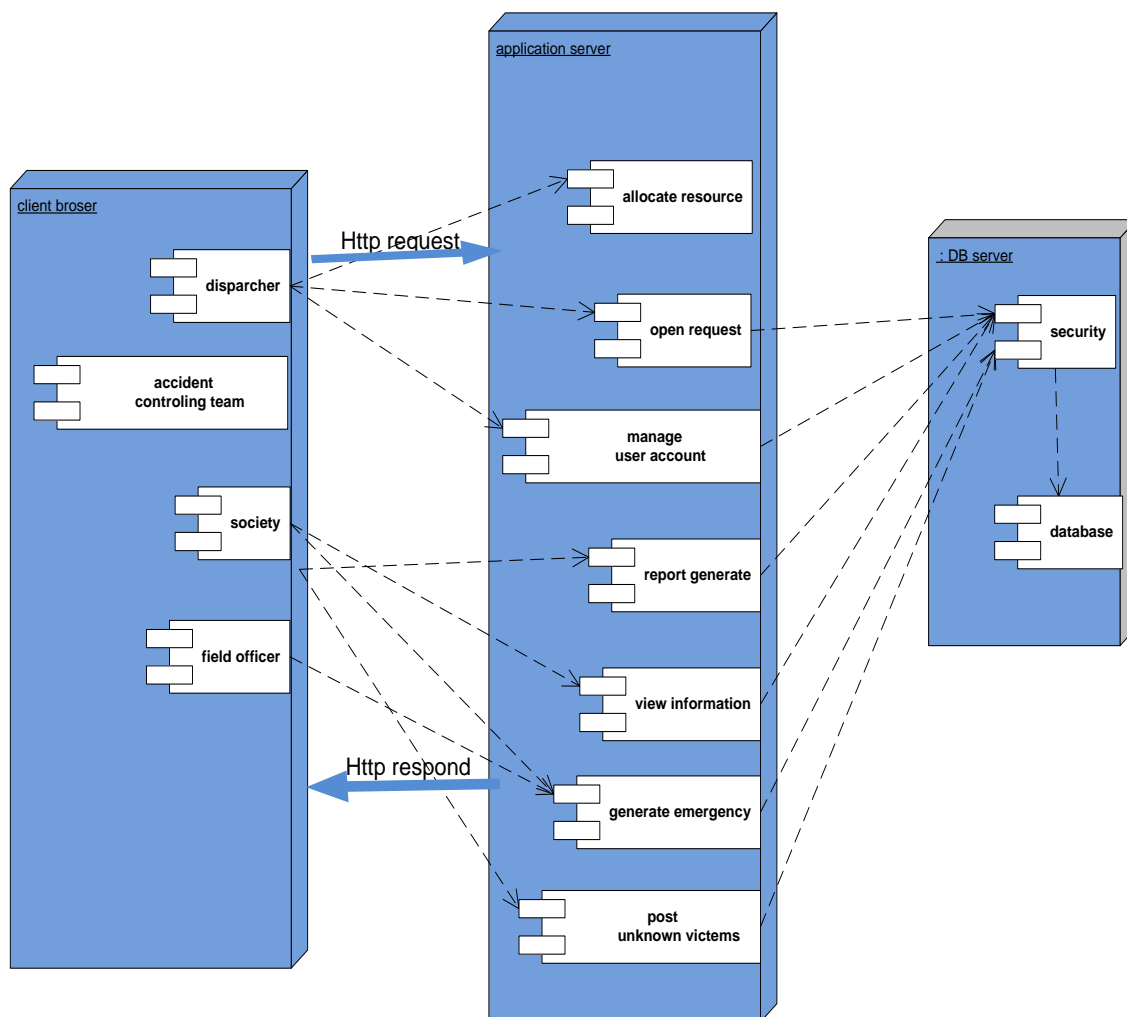


Figure 25: deployment diagram [3]

4.8 Persistence modeling

Persistent data management deals with how the system is going to handle the actual data need to be stored on the database of the system. The purpose of persistence modeling is which objects in the system design are required to be stored persistently. Clearly, in a database driven application like this one, almost all system interactions have deal with persistent data. Online accident management system will largely depend on a relational database to perform day-today operations and storing log data. Data will be stored in a My SQL Data Base Management system and manipulated through the Database Subsystem, which will ensure data integrity and consistency. Database Subsystem will contain all necessary SQL queries that will be accessible by the rest of the Subsystems.

The data stored in the database will include:

- ❖ Emergency accident report
- ❖ User account
- ❖ Society
- ❖ Employ profile

ACCIDENT INFORMATION MANAGEMENT SYSTEM FOR KOMBOLCHA CITY POLICE STATION

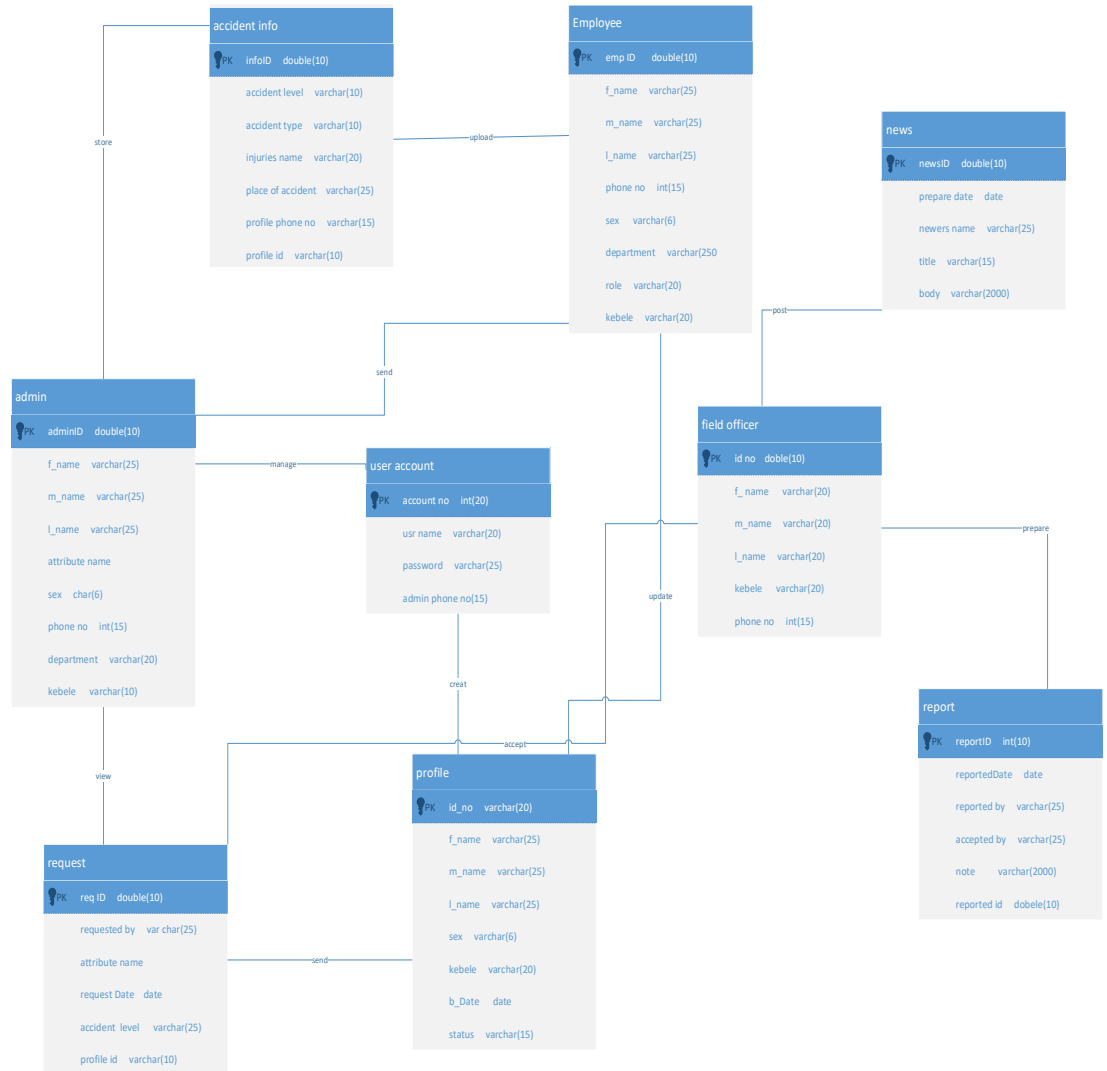


Figure 26: Persistence modeling diagram

4.9 User Interface design

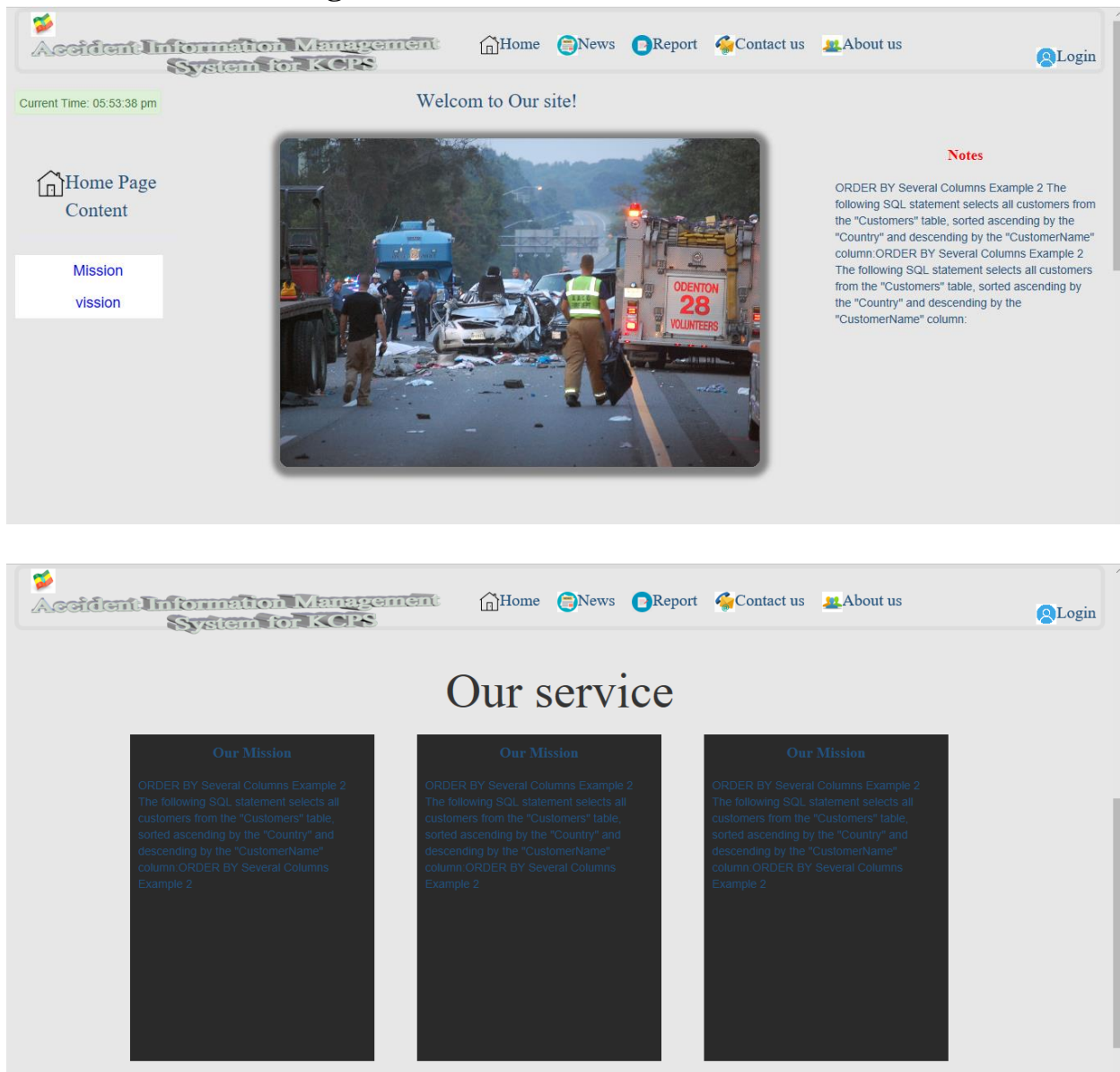


Figure 27: User interface of KCPS

Chapter Five

Implementation and Testing

5.1 Introduction

Implementation refers to the Coding of all the documents gathered starting from requirement analysis to Design phase. So now the team is in a position of converting all documents gathered and designed into the code so that the system will be implemented for the user to be used for the purpose it developed. To implement it the user must have use website which have network.

The result of this phase consists of source code, together with documentation to make the code more readable. This is what we call software implementation. The purpose of these activities is to convert the final physical system specification into working model with reliable software and hardware, document the work that has been done, and provide help for current and future users and take care of the system.

5.2 Final Testing of the system

The team members test the whole system in the following procedures.

1. *Unit testing:* the team member tests every module by applying some selection mechanism. Through this mechanism every modules gets tested. If an error occurs correction will be taken without affecting another module.

| Tested Form | Test Case | Expected Result |
|-----------------|--|--|
| Login Form | validate user name and password entry as an input from each end users. | Display a message when user didn't fill user name or password and also when there is user name or password error |
| All other forms | controlling the proper insertion of data. | Display a message when user left some text fields, radio buttons, combo boxes or date and time unfilled and insert improper data in to the form try to save. |

Table 28: unit testing

2. *Integrated testing*: all the modules will be combined together and tested it for its fitness with each other and with the systems functionality. If error occurs in combining them, the module with problem will be identified and recombined.

| Tested Form | Test Case | Expected Result |
|--------------------|---|--|
| Login Form | Check the correctness of the form to be displayed after login is succeeded. | Display administrator or system members menu. |
| Administrator menu | check proper display of selected options to be accessed. | Display the selected form from the administrator form as menu. |
| Report form | check whether the report will be generated or not. | The selected report will be displayed. |
| All forms | check the navigation functionality. | The form required Will be displayed. |

Table 29: integrated testing

3. *System testing*: the team member to performs over all functional testing by checking whether it meets the required target or not. Here the system is partially functional and reached its requirement.

| Tested from | Test case | Expected result | Actual result |
|-------------|---|---|---|
| Login form | To validate the proper functionality of login by inserting username and password. | To authenticate user. | user will be authenticated and if user is authorized enter to the system else confirm invalidity. |
| Search form | To validate the functionality of search form. | Search result. | If the requested record exist display the result else if it doesn't exist display the message about the status. |
| Report form | To validate the functionality of report form. | To generate report. | generate the requested report if the request is valid, if request is invalid display message box that describes the invalidity. |
| All forms | To validate the functionality of each form. | To provide the function required by the form. | The form is presented and the required function can operated using the form. |

Table 30: system testing

5.3 Hardware software acquisitions

Hardware software acquisitions determine the system resource requirements, its capability with other systems and networks, it's interface requirements to existing systems if any, it's security capability, deficiencies and vulnerability and to make sure there are not already existing software/system that provide equivalent functionality. For the project implementation the following Software and hardware are used.

Hardware

- Computers

Software tools:

- Browsers (Mozilla Firefox, Google chrome)
- Notepad++
- Sublime text
- Xampp
- Microsoft word
- Notepad
- Visual paradigm for UML diagram.

5.4 User manual preparation

For society/user: someone wants to report some accident follow the following step

Step1: For society wants to report some accident in her/him around first enter to kombolcha city police station system.

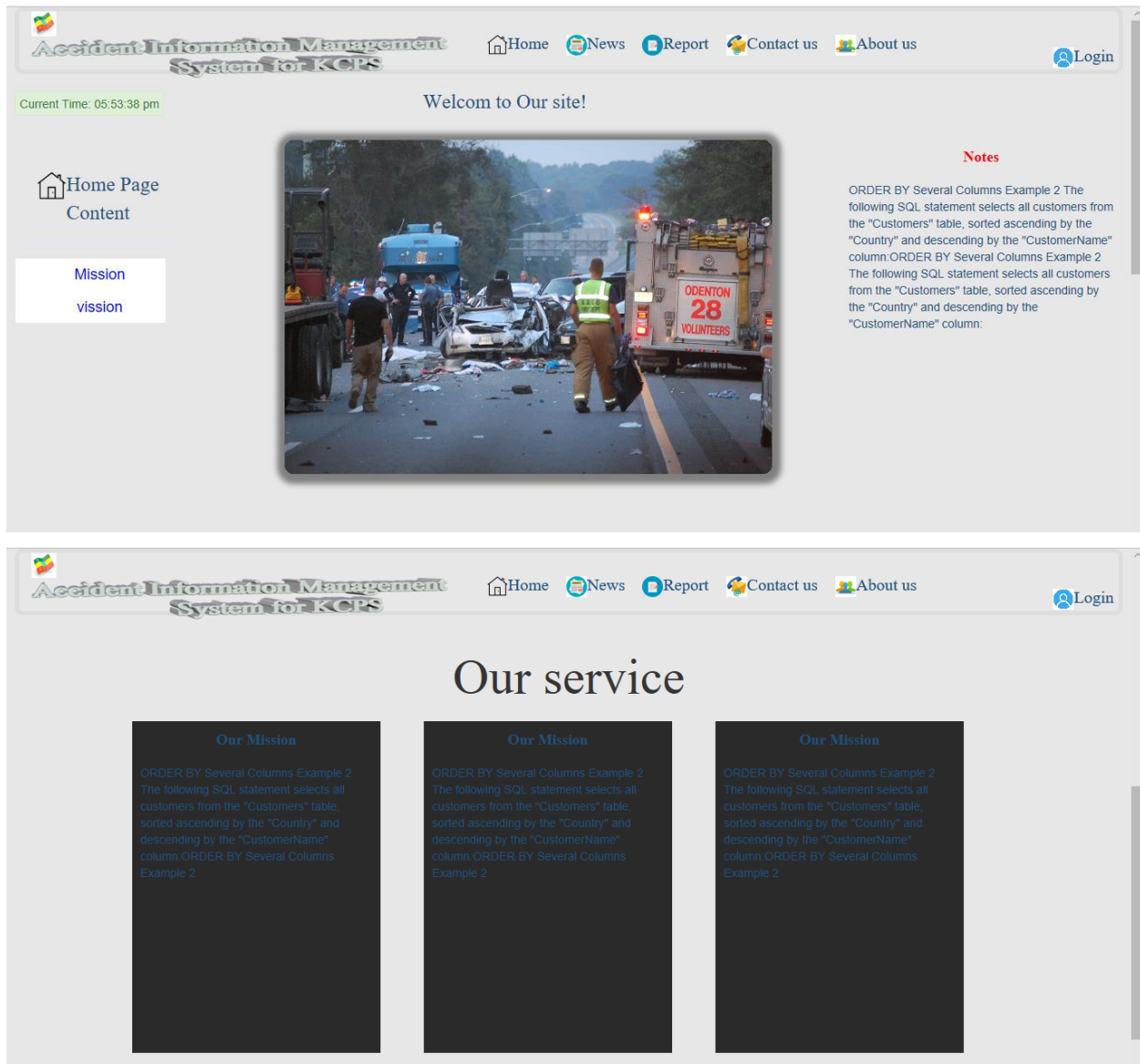


Figure 28: user interface

Step2: He/she fill the necessary information properly.

Not! Kombolcha city police station is one of the institutions of accident management station on the given of this service there are many problem on the accident management that was established long years ago to give service to protect. Kombolcha city from accident. The station has responsible for receiving the accident sound and having quick response to the received accident sound and storing the nature of the accident, the location details, the sequence.

Name

Phone

Report content/type

Content.....

Figure 29: accident report page

Step4: If the user/society enter the information correctly the system displays the success message otherwise the system display dose not sent the request.

Your Data send! ➡

Figure 30: responding from system

Login using your username and password to:

Field officer:

Step1:-Login using your username and password to:

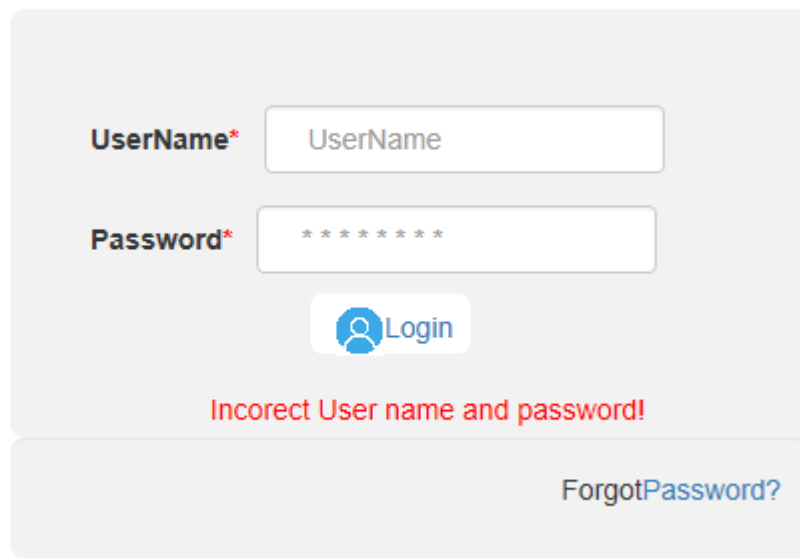
- Report the emergency accident.
- View request

For example filed officer to change his password follow the following step Step1:- to access the system must be have username and password then enter the password and user name.

The screenshot shows the login interface of the 'Accident Information Management System for Komsolcha'. The header includes a logo, navigation links (Home, News, Report, Contact us, About us), a 'Login' button with a red arrow, and a 'Current Time: 06:15:24 pm' display. Below the header, a 'Welcome to Our site!' message is visible. The main login area contains two input fields: 'UserName*' with the placeholder 'UserName' and 'Password*' with masked characters '*****'. A 'Login' button with a user icon is positioned below the password field. At the bottom of the login area, there is a 'Forgot Password?' link.

Figure 31: User login page

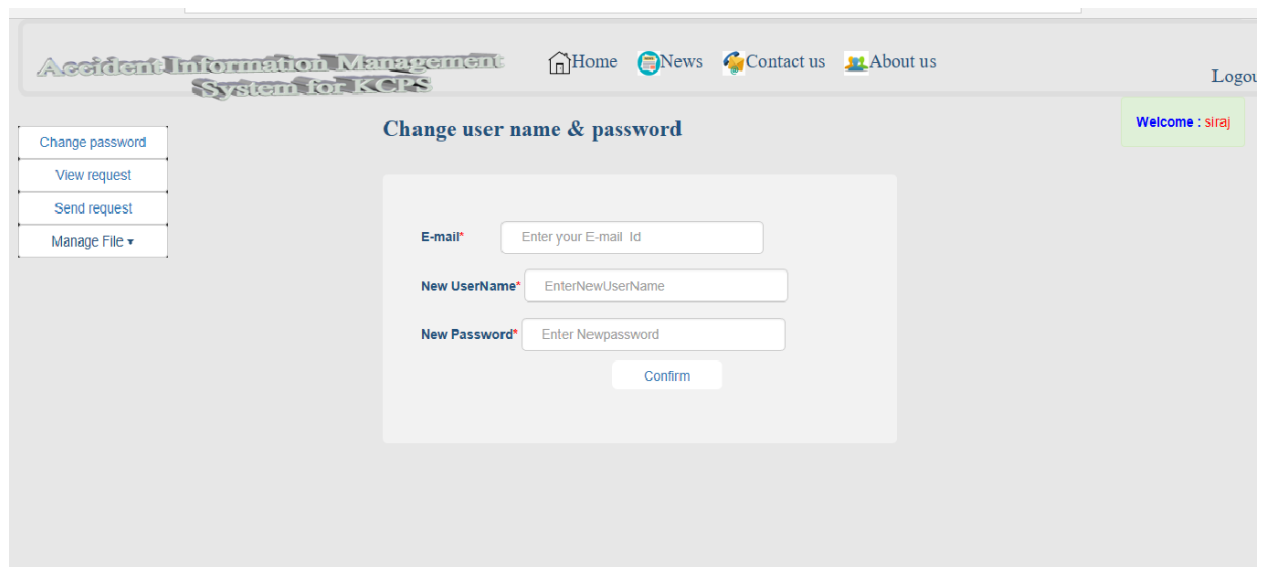
If you insert wrong username and password the system displays the following.



The image shows a login interface with two input fields: 'UserName*' and 'Password*'. The 'UserName*' field contains the text 'UserName'. The 'Password*' field contains ten asterisks. Below the fields is a 'Login' button with a user icon. A red error message 'Incorect User name and password!' is displayed below the button. At the bottom right, there is a link 'ForgotPassword?'.

Figure 32: the system responding when inserted invalid data

Step-2- Entering in to the system: If you enter the correct username and password in to the login page it brings to the main page safely. It seems like this.



The image shows the main page of the 'Accident Information Management System for KCPS'. The header includes the system name and navigation links: Home, News, Contact us, and About us. A 'Logout' link is in the top right. A sidebar on the left contains links: Change password, View request, Send request, and Manage File. The main content area is titled 'Change user name & password' and contains a form with three fields: 'E-mail*' (placeholder: Enter your E-mail Id), 'New UserName*' (placeholder: EnterNewUserName), and 'New Password*' (placeholder: Enter Newpassword). A 'Confirm' button is at the bottom of the form. A green box in the top right says 'Welcome : siraj'.

Figure 33: accident control team page

Step3:-The Teamcontroler enter to system he done on him privilege. For example he wants to change his password he click the password button.

Figure 29 password change picture

Figure 34: accident control team to change the password

Accident control team:

Login using your username and password to:

- View request sent from dispatcher.
- Open Request to Teamcontroller.
- Change password.
- Add new accident file.
- Update accident file.
- View the accident file.
- Delete the accident file.

Dispatcher: -Login using your username and password to:

- Post news.
- Add new employ to system.
- View the emergency request sent from the society and respond to accident control team.
- Allocate Resource.

- Create the user account.
- Update the user account.
- Delete the user account.
- View user account.
- Manage the staff for example the dispatcher wants to see the request pass the following step:

Step1: first he/she should be login to system.

Step2: if he/she enter the user name and password incorrect the system display message.

Step3: The dispatcher enter the user name and password correct he/she get the following page.

Figure 35: dispatcher home page

5.5 Training

Underlying success in most jobs roles is governed by the effective processes. These are often organizational specific. That might be the process you use, or how you use a specific engineering process to achieve a competitive advantage. If we need people to apply that process we need to train the users of the system effectively. Challenges in system and process training can include:

Consistency: we make sure everyone's learning the same best practice..

Activation: it is not just about understanding. It's about taking responsibility for application of your processes and procedures, and knowing how and when to use the right ones.

Ongoing access: make sure reminders are on tap at the point of need.

5.5.1 Training strategy

The organization user group might have a different training strategy although there would be a lot in common.

End-user training: End-user training will be provided using a separate modules and departments. This system allows the creation of web-based content and provides a step-by step walk through of the business process. Custom text, tips and explanations can be included in the recorded process. In our system the end user include the society or the user we learn how to use the system and changing in the awareness about only use the request button if some accident happen only.

Technology:

- The developer will install the system on the server.
- The system content will be published on a set schedules using the modules on the server
- Ensure users have logon access.
- End users will access training materials through web browsers.
- Ensure server has capability to handle usage timeline.
- Training materials will be developed during prototyping and configuration.
- Training should be done before the system go-live for the operational offices.

Trainer:

- Project managers will determine who will conduct the training.
- The stakeholder will determine who will be trained for a specific module.

Resources:

- Determine who will maintain training materials as editing is needed.
- Determine how to identify when edits are needed.

- Training manager will be the point of contact for edits, changes, revisions and publish schedules.

Location:

- Trainers determines where training will be held.
- The organization locates training site for their users.

Evaluate training:

- After system testing solicit feedback to determine next steps.
- Respond to areas that need more attention.
- Make required changes per user feedback.
- Announce what changes or edits were made.

User acceptance testing:

- We would create user acceptance testing prior to delivery.
- Edit and modify system documentation when needed.

5.6 Installation Process

Required items to request an agent installation:

To request a web based installation, we need to provide the following information:

- Name of organization requesting the installation.
- IP address of the server being protected.
- Host name of the servers.
- URL being protected.
- Operating system of the web application server being protected. Give the specific version of windows, Linux, or UNIX, specify whether 32/64 bit.
- Type of web application server (Apache).

5.7 Start-up strategy

The start-up strategy will be:

- Buying a domain name
- Hosting the system
- Finally available internet connection

Chapter Six

Conclusions and Recommendation

6.1 Conclusions

Implementing the analyzed and designed online accident management system might be the best solution to the current major kombolcha police station problem, as it will provide online reported the accident, so that the society can inform from home or anywhere else via such system. Accident information Management System allows police department to store department's accident details, Complaint Details, report store details, etc. This Software Package allows Police Departments to store all the details related to the department and use them whenever necessary. This project will also be able to provide reports of various accident type, accident report, and also be able to upload and view known people die in accident, and hot news. The implementation of the system in the organization will considerably reduce manual data entry, time and also provide readily calculated reports.

6.2 Recommendations

The system that we have developed, involves web based accident management system for KCPS that means it's a huge system. so it is very difficult to include all functionality of the police station office so that we only concerned on the online emergency accident report, record the accident file, and prepare report and easily recording the accident management employs. Therefore, we recommend the following features need to be included in any further revision and extension attempt.

- ❖ May used the web base to change in to android or mobile based application.
- ❖ Use uninterruptible power supply or UPS if electric power is not available in station.
- ❖ Integrate with the court system.
- ❖ Adding the chatting system.
- ❖ System allocate the resource based on the accident weight and level of the accident.

- ❖ They done all system in police station are automated.
- ❖ Handle the society use the request page for emergency purpose only.
- ❖ Update this system to android based system or integrate with android and PHP.
- ❖ May used location based telephone number calling, this mans for example there are three police station in kombolcha city, all the telephone number of police station record in database, using android application to call from initial distance to police station comparing which police station are near to initial point it calling comparing the distance between them. The user only click the application system the system calling by itself. Therefore, others who are interested to develop a new system on police station accident management system or other related systems can get some initial idea about the system. By focusing on the limitation and functional areas of the system they can also develop a better police station management system that automates all files managed in police station and other related things.

Appendix

Paper Document in the Existing System, Accident report form for kombolcha city police station

Accident Investigation Report Form

EMPLOYEE DETAILS

Name: _____ Position: _____

Address: _____

INJURY DETAILS

Date of accident: _____ Time: _____ Date Reported: _____ Time: _____

Date ceased work: _____ Time: _____ Supervisor: _____

Time lost (to date): _____ Time lost (anticipated overall) _____

Medical Treatment required:

Injury requires physician/hospital visit? Yes ____ No ____

Name of physician/hospital: _____

Address: _____

Physician/hospital phone number: _____

Signature of injured party _____

Date

*No medical attention was desired and/or required.

Signature of injured party _____

Date

Return this form to Safety Coordinator within 24 hours of incident.

Figure 36: appendix

ACCIDENT/INCIDENT REPORT FORM

Date of incident: _____ Time: _____ AM/PM

Name of injured person: _____

Address: _____

Phone Number(s): _____

Date of birth: _____ Male _____ Female _____

Who was injured person?(circle one) Passenger System Employee

Type of injury: _____

Details of incident: _____

Reference

[1] The Class Diagram: Available at: <http://creatly.com/blog/diagrams/understanding-the-relationships-between-classes/> accessed on [April 26, 2015]

[2] The Class Diagram: <http://www.agilemodeling.com/style/classDiagram.htm> accessed on [April 26, 2015]

[3] The Deployment Diagram: Available at:
<http://www.agilemodeling.com/artifacts/deploymentDiagram.htm#sthash.UBc38rho.dpuf>
accessed on [April 26, 2015]

[4] The Collaboration Diagram: Available at:
<http://agilemodeling.com/style/collaborationDiagram.htm> accessed on [April 26, 2015]