LOCATION BASED AMBULANCE SERVICE APPLICATION

A PROJECT REPORT

SUBMITTED BY

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in Partial Fulfilment of the Requirements
for the Degree of

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Under the Supervision of

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July 2021

DECLARATION

I hereby declare that the work presented in this report entitled **"Location based Ambulance Service App",** was carried out by us. I have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute. I have given due credit to the original authors/sources for all the words, ideas, diagrams, graphics, computer programs, experiments, results, that are not my original contribution.

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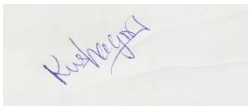

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CERTIFICATE

Certified that KUSHAGRA BAJPAI (**Univ**. **Roll No. 1900290149055)** have carried out the project work having **"Location based Ambulance Service App"** for Master of Computer Application from Dr.A.P.J.Abdul Kalam Technical University (AKTU Technical University, Lucknow under my supervision. The project report embodies original work, and studies are carried out by the student himself/herself and the contents of the project report do not form the basis for the award of any other degree to the candidate or to anybody else from this or any other University/Institution.

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This is to certify that the above statement made by the candidate is correct to the best of our knowledge.

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ABSTRACT

In this project an android app namely Ambulance Management System has been developed. There is most common rescue service 108 which is managed through phone calls but it's a unique idea in itself in which one can book an ambulance using an android smart phone.

The request for an ambulance made by the proposed app is directly updated on a centralized main office, where 24/7 server will automatically check the request calculate coordinates and response back to the user and it's respective nearest station. That request is in progress and from which station ambulance will come. All this process and management will handle virtually. The whole history will maintain on server side and also on user side. When task is done then status on app and sever side will be update. It develops for serving humanity in the situation of emergency by using precise and accurate results.

ACKNOWLEDGEMENT

Success in life is never attained single handedly. My deepest gratitude goes to my thesis supervisor **Mr. Ankit Verma,** for his guidance, help and encouragement throughout our project work. Their enlightening ideas, comments, and suggestions.

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KUSHAGRA BAJPAI

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INTRODUCTION

1.1) Project Descripion

As we listened the word ‘Ambulance’ the first thing comes to mind is the rescue process. In the modern era where the population is increasing day by day, people feel uncomfortable and frightened due to danger aspects of road accidents, some known and unknown disease which required the quickly treatment but unfortunately due to couple of minute delay some important lives are lost. Therefore, to give the quick first-aid to the patient rescue system of every country should be maintained and trained well for the betterment of human beings and to avoid the deaths which occur due to delay in rescue process. So our first goal is to maintain the ambulance service system first by making android application for the rescue process. It will provide all the rescue centers to stand on one platform through ambulance service application. In case of any accident we call an ambulance for help via call. There are many organizations which provide ambulance services in Pakistan. But there is a problem with these organizations that they did not work together. So that, when there an accident occur people call for ambulance of specific organization like ‘Eidhi’, ‘Cheepa’, ‘Rescue 1122’, ‘FIF’ etc. There can be possibility that the ambulance of that organization will not available near the place of accident. So this application will help people to find ambulance near them of any organization. We have proposed an android app namely Ambulance Management System (AMS).

User will properly sign up in the app with his mobile and CNIC number for authentication so that irrelevant person will not use this app without any reason. In case of emergency he will request for an ambulance made from his phone that will be directly updated on a centralized main office where 24/7 server will automatically check his request, calculate coordinates and will check the availability of ambulance in very nearly station, if there is no ambulance available in that station, then server will check up next near station and response back to the user that request is in progress and how much time it takes to reach, and from which station. All this process and management will be handled virtually using defined

algorithm. The whole history will maintain on server side. When task is done then status and number of ambulance will be updated on sever.

1.2) Problem Statement

Ambulance plays a very crucial role when an accident occurs on the road network or in case of any medical emergency and the need arises to save a human life. Manual booking of an ambulance at times of emergency can take away precious time as it is a time-consuming process. Furthermore, the delay caused due to the heavy traffic congestion in between the pickup spot and the hospital facility may increase the risk of death for the victim.

The system proposed here will help the users book an ambulance easily in an instant. The user will have to select the ambulance size, pick-up point & hospital. In case of emergency, the user will have to just select the pick-up point & destination and the system will automatically book the nearest ambulance and hospital. Once booked the ambulance operator will receive a notification for confirmation of the booking. The Ambulance driver can view the pick-up and drop location on Goggle Maps. The users will receive the contact details of the driver. The Hospitals can also view the booking history. This is how this Ambulance Booking App will act as a life savior in times of medical emergency.

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1.3) Solution Approach:

There should be an android based ambulance management system through which we can improve ambulance service system. So we have tried to enhance the capabilities of a management system by linking an android app with web based platform in which user can check its request's status and admin maintain things and view user's history. It will be a totally free of cost app.

1.4) Project Oversight

The Admin and developer will be responsible to manage the system. The admin can do the processes of modification, cancellation and some other issues which can affect the system. The admin can also take the decision of changing the app design and can also demand from the developer to extent some internal features of app which can be handy.
The developer will be responsible of enhancing the app features as well as the requirements of user and the developer will also be responsible for maintaining the app through finding the bugs.

1.5) Goals and objectives

The purpose of the application is to give better idea for rescue system with user friendly interface in case of emergency and rescue situation. At the present, there is no such application which can facilitate the people in case of emergency through a smart phone app.

1.6) Implementation Approach

The admin OR developer will participate in the design and testing of the new Ambulance Management System. They will participate in the integration and system testing as well end-user testing for the following modules: Authentication, authorization, and some other services. The participants will also support end user training classes.
The technical team will be responsible for the app development and testing as well as they will also be capable of finding the errors and unnecessary things to terminate them.

1.7) Working of the Project

In this system, the User will be able to book an ambulance in advance according to the size of the ambulance and selected hospital, or the user can also book an ambulance for emergency regardless of its size and a random hospital will be allocated to the user. Then the ambulance driver will accept or reject the booking from the user, after accepting or rejecting the status will be updated for the same to the user. Hospital can view the bookings history of the user for that particular hospital.

1.8) Advantages

- Patients can now book an ambulance for an emergency as well as for non-emergency services. User can keep history of the trips and can view any time
- You can locate the nearest available ambulance and request the same.
- Instantly get the information & contact details of the driver.

1.9) Limitation

- Wrong inputs will affect the project outputs.
- Internet Connection is mandatory.

- The android mobile user will not be able to insert or view details if the server goes down. Thus, there is disadvantage of single point failure.

1.10) Drawbacks of Current Manual System

- The current manual system has a lot of paper work and it does not deal with exact details.
- To maintain the records of candidates and companies manually, is a Time consuming job.
- With the increase in database, it will become a massive job to maintain the database.
- Requires large quantities of file cabinets, which are huge and require quite a bit of space in the office, which can be used for storing records of previous claims
- .Lack of security for the records, anyone disarrange the records of your system.

1.11) Proposed System

1. **Details**: The new proposed system stores and maintains all the online users etc.

2. Calculations: The new proposed system updates tables and other information automatically and it is very fast and accurate.

3. Registers: There is no need of keeping and maintaining accounts and information manually. It remembers each and every record and we can get any report at any time.

4. Speed: The new proposed system is very fast with 100% accuracy and saves time.

5. Manpower: The new proposed system needs less manpower. Less people can do the large work.

6. Efficiency: The new proposed systems complete the work of many people in less time.

7. Past details: The new proposed system contains the details of each enquiry done by visitor.

8. Reduces redundancy: The most important benefit of this system is that it reduces the redundancy of data within the data.

9. Work load: Reduces the work load of the data store by helping in easy updates of the products and providing them with the necessary details together with financial transactions management.

10.Easy statements: Month-end and day-end statement easily taken out without getting headaches on browsing through the day end statements.

CHAPTER 2

LITERATURE SURVEY

Online Cab Booking :

The existing research is based on a cloud server that gets a request from the client through their smartphone devices which in response tells the taxi driver the current location coordinates of the patient. This involves internet-connected smartphones. The taxi driver in return acknowledges the acceptance or rejection. The website then shares the trip details to the users. To update the location information on the server, RFID tags and readers are used on a clustered server. This clustered server will be refreshing the central server after every interval. [18][19][20][21][22]

2.1) OLA cab service:

A. Collection of Data from Uber and Ola Consumers Research on Users‟ Opinion and Bliss towards Online Cab Service concerning a region[1] recalled the development history of some of the leading peaks of cab rental applications like Ola and Uber. The paper also focused on the collected data of Uber and Ola consumers. Data was collected from nearby professionals. Analytical investigation explicated that customers favor Uber over Ola over billing as a concern. On the contrary with safety Ola is picked over Uber.

2.2) UBER Cab service:

Uber was founded in 2009 as Uber Cab by Garrett Camp, the cofounder of Stumble Upon, and Travis Kalanick, who had sold his Red Swoosh start up for $19 million in 2007. Kalanick joined Camp and gives him & quot full credit for the idea & quot of Uber. On New Year's Eve, Camp spent $800 hiring a private driver with friends and had been mulling over ways to decrease the cost of black car services ever since. He realized that sharing the cost with people could make it affordable, and his idea morphed into Uber. & quot Garrett is the guy who invented that shit, & quot Kalanick said at an early Uber event in San Francisco. The first prototype was built by Camp, and his friends, Oscar Salaza and Conrad Whelan, with Kalanick being brought on as & quot mega advisor & quote to the company.

2.3) E-AMBULANCE:

E-Ambulance System M Bin-Yahyaa, E M. Shakshukib in their research "E-AMBULANCE: Real Time Integration Platform for Hetero- geneous Medical Telemetry System paper" [10] introduced the Electronic emergency ambulance response system; an intelligent ambulance design that performs automatic response developments into intensification to regulating to boost some likelihood from protecting sufferers of health frightening situations by using IOT sensors, DDS standards. Additionally to this, added factors of Quality of Services strategies and Real-Time Publish-Subscribe Protocol which could be harmonized to magnify the sense of Data Distribution Services in medicinal operations across numerous radio communication technology such as Wireless Fidelity and many more.

2.4) Effective Ambulance Service

A general thesis on ambulance Service [8][9][11] have developed an idea for saving sufferers‟ lives in a more agile and potential way. With their Application, the ambulance can reach to the user or victim as the position is traced or delivered by the application and also can accommodate important equipment's which is needed for the patient's well- being

2.5) Smart Band Ambulance System (IEEE Paper by:

Shubhanshu Singh Patwal, Rohit Kumar, Rishabh Mishra) In today's time diseases are spreading at a rapid growth especially in densely populated regions, and an easy example is of cardiac which targets specially the elderly people and is more dangerous when they are living alone. To address the issue, we are introducing a smart band ambulance system. It would take India to competitive position in emergency services around the globe. In recent times, there has been a revolutionary development in the field of Internet of Things (IoT). It can be used seamlessly to strengthen the emergency medical response via smart band ambulance system, as IoT can also be used widely in large number of end system where large amounts of data can be accessed and processed easily and powerfully. IoT and smart devices helps in building a platform which serves every smart device user where a smart band will continually focus on monitoring heart beats of a person wearing this band. This data will be collected through an application and send to a centralized database, where it will get filtered for any irregularities, and if found any then that person will be informed and if needed an ambulance will be dispatched to their whereabouts. User can see the location of dispatched ambulance with the help of Global Positioning System (GPS) and google maps API on their smartphones. [3.5]

Ambulance with Emergency Department

One of the Preliminary research on the Influence of am- balance facility on resource use in the emergency department (ED) held an objective to find how the ambulances are

associated with the resources which were used in ED [12]. A review was made to there respective administrative database to ensure whether the resources which were to be used in ambulances were as per the order of ED. In multivariate paradigms that set for the influences of age, sex, triage, seriousness, and transient determinants, ambulance transportation secured its fellowship with more comprehensive resource use. Hence, a preparatory investigation designates that sufferers coming facilities by the Emergency Department by emergency vehicle use considerably excess enhanced sources than expected equivalents.

Location-Based Services

Progressive research on Location-based services[2][14][16] studied two broad categories of LBS. To track the location of a users‟ device, the LBS detection technique can use a dynamic and real time plotting algorithm. A particular location is broadly identified by practicing the corresponding graph system. Several LBS can be categorized following the varied kinds of the intended recipient whether device or human, push vs. pull, secondary vs. primary and so on. Push and Pull based LSB were the two categories explained. Another research called Observe Time Difference Of Arrival (OTDOA) [6] method, which considers the data gathered from a minimum of three base–stations is performed. Further Round Trip Time is calculated to determine the location.

CHAPTER 3

ANALYSIS

3.1) System Analysis:

A system analysis is a separation of a substance into parts for study and their implementation and detailed examination. Before designing any system it is important that the nature of the Cabiness and the way it currently operates are clearly understood. The detailed examination provides the specific data required during designing in order to ensure that all the client's requirements are fulfilled. The investigation or the study conducted during the analysis phase is largely based on the feasibility study. Rather it would not be wrong to say that the analysis and feasibility phases overlap. High-level analysis begins during the feasibility study. Though analysis is represented as one phase of the system development life cycle (SDLC), this is not true. Analysis begins with system initialization and continues until its maintenance. Even after successful implementation of the system, analysis may play its role for periodic maintenance and up gradation of the system

System Analysis is a detailed study of the various operations performed by a system and their relationships within and outside of the system. Here the key question is- why all problems exist in the present system? What must be done to solve the problem? Analysis begins when a user or manager begins a study of the program using existing system. During analysis, data collected on the various files, decision points and transactions handled by the present system. The commonly used tools in the system are Data Flow Diagram etc. Training, experience and common sense are required for collection of relevant information needed to develop the system. The success of the system depends largely on how clearly the problem is defined, thoroughly investigated and properly carried out through the choice of solution. A good analysis model should provide not only the mechanisms of problem understanding but also the frame work of the solution. Thus it should be studied thoroughly by collecting data about the system. Then the proposed system should be analyzed thoroughly in accordance with the needs. System analysis can be categorized into four parts.

- System planning and initial investigation
- Information Gathering
- Applying analysis tools for structured analysis
- Feasibility study
- Cost/ Benefit analysis.

In our existing system the recording of user's information is done manually, So taking more time for searching the information of the users. Another major disadvantage is that preparing the list of members that viewed any user's information takes more time. So, after conducting the feasibility study I decided to make the agriculture System to be computerized.

3.2) Cost and benefit analysis Developing an IT application is an investment. Since after developing that application it provided the organization with profits. Profits can be monetary or in the form of an improved working environment. However, it carries risks because in - 31 - some cases an estimate can be wrong and the project might not actually turn out to be beneficial. Cost benefit analysis helps to give management a picture of the cost, benefits and risks. It usually involves comparing alternate investments. Cost benefit determines the benefits and savings that are expected from the system and compares them with the expected cost. In performing cost and benefit analysis it is important to identify cost and benefits factors. Cost and benefits can be categorized into the following categories: i. Development cost - Development costs is the cost that are incurred during the development of the system. It is one time investment. ii. Operating cost - Operating cost are the expenses required for the day today running of the system. As, operating cost are wages, supplies and overheads. iii. Hardware/Software cost - It includes the cost of purchasing or leasing of computes and it's peripherals. Software costs involves required software cost. iv. Personnel cost - It is the money spent on the people involved in the development of the system. v. Facility cost - Expenses that are incurred during the preparation of the physical site where the system will be operational. These can be wiring, flooring, acoustics, lighting, and air-conditioning. vi. Supply cost - These are variable costs that are very proportionately with the amount of use of paper, ribbons, disks, and others.

System Specifications:

Hardware Requirements :

- Intel i3 (Processor).

- 4 GB Ram
- 512 KB Cache Memory
- Hard disk 10 GB
- Microsoft Compatible 101 or more Key Board

Software Requirements:

- **Operating System :** Windows
- **IDE :** Android Studio
- **Development Language:** JAVA
- **Back-End:** Firebase

Supplementary Requirements

Usability

The application is developed with a user friendly environment such as the font size, text alignment and other complicated things are adjusted in a simple way. User can easily understand the functions of the application.

Reliability

System will be able to perform operation efficiently with a reliable environment and with minimum chances of losing data.

Supportability

This application can be easily downloaded from Google play store and can be used rapidly in case of emergency.

- **1.10.3 User requirement:**

The application user must have a smart phone which has the functionalities of accessing the data network or WIFI'

CHAPTER 4

PLANNING THE PROJECT

4.1) Introduction

Project management involves the planning of the project. Initially project is defined as the methodologies that are commonly use in software development. Some steps are required to fulfill the work of the application.
The project plan implemented to get the balance between resource usage and project timing to command with the project purposes.

4.1.1) Advantages of Planning

- It describes the direction of acting that we propose to pledge.
- It tells estimated time that is required for a project.
- It tells us about the expenses or budget that is involved in the project.
- It gives us the idea to get prepared for emergencies which may occur during the project.
- A well-defined plan tells us idea about the work that is to be done every day, week and month.
- It helps to avoid duplication.
- A plan tells everyone a brief idea to play an important role in the project.
- Strategy plans are of both types i.e. short term and long term.

4.2) Project schedule

The objective of software project planning is to provide a framework that enables the manager to make reasonable estimates of resources, costs and schedule. These estimates are made within a limited time frame at the beginning of a software project and should be updated regularly as the project progresses. In addition, estimates should attempts to define “best case” and “worst case” scenarios so that project outcomes can be bounded. The first activity in software project planning is the determination of software scope. Function and performance allocated to software during system engineering should be assessed to establish a project scope that is ambiguous and understandable at Presidency and technical levels. Software scope describes function, performance, constraints, interfaces and reliability.

During early stages of project planning, a microscopic schedule is developed. This type of schedule identifies all major software engineering activities and the product functions to which they are applied. As the project gets under way, each entry on the macroscopic.

schedule is refined into detailed schedule. Here specific software tasks are identified and scheduled.

Scheduling has following principles:

1. **Compartmentalization:** the project must be compartmentalized into a number of manageable activities and tasks.

2. **Interdependency:** the interdependencies of each compartmentalized activity or tasks must be determined.

3. **Time allocation:** each task to be scheduled must be allocated some number of work units.

4. **Effort validation:** every project has a defined number of staff members.

5. **Defined responsibilities**: every task that is scheduled should be assigned to a specific team member.

6. **Defined outcomes:** every task that is scheduled should have a defined outcome.

4.3) Gantt Chart : When creating a project schedule, the planner begins with a set of tasks (the work breakdown structure). If automated tools are used, the work breakdown is input as a task network. Effort, duration and start dates are input are each task network. As a consequence of this input, a timeline chart also called a Gantt chart is generated. A timeline chart is developed for entire project. Gantt chart for project:

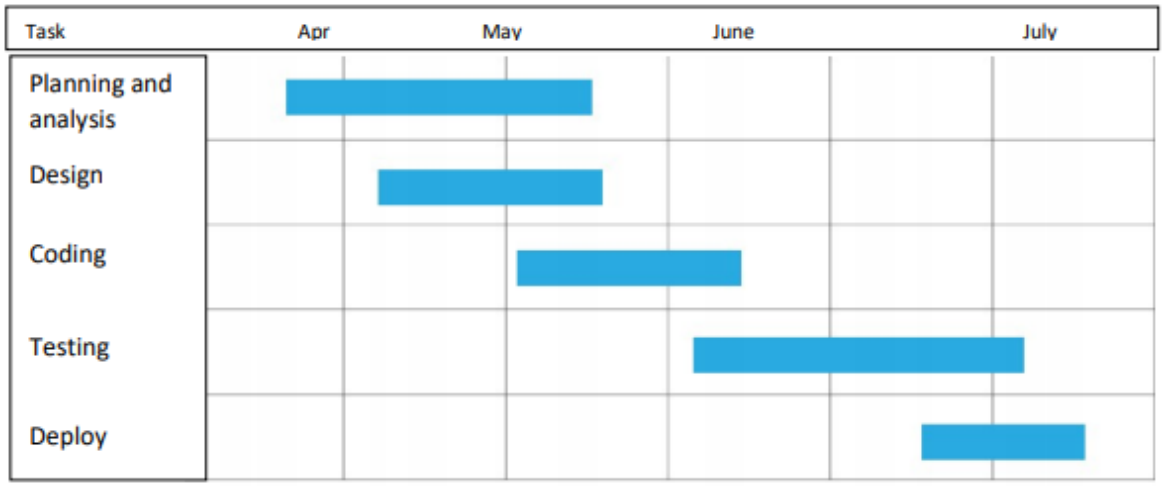

Figure 1 :Gantt chart for project

Here horizontal bars indicate the duration of each task.

4.4) Project Description

The ambulance management system describes the system which facilitates the public in the situation of emergency.

The following screens will be provided:

Welcome Screen:

- This page will allow user to choose whether he/she is a patient or a Ambulance Driver.
- After this the user will redirected to there respective login page.

Signup Page :

- You have to create your account if it not created earlier.
- User can create account by entering user name and password

Login

- User have to provide email and password for registration .After that only all the feature can be accessible by the user.

- Already registered user will authenticate themselves by providing there email id password.

Password Reset :

- This module help to reset our password by entering email id here.
- After verification of email id user can reset password.

Request an ambulance :

This module works just like a modern cab booking facility .User's current location will be fetched by device's GPS . User have to provide drop location (medical facility) . Driver access this data to reach that location.

Pickup Request (For Driver) :

- Driver can specify ,whether they are working or not by tapping on toggle switch.
- Ambulance Driver will receive pickup request from patient.
- Driver can accept the pickup request and then route will be shown from driver's location.

4.5) Modules

- **Patient :**

1. **Register**
   - User can register using personal details
2. **Login**
   - User can login in his personal account using id and password.
3. **Change Password**

- Can change the password within app

4. **Forgot Password**

   - Password will be sent on email

5. **Book an ambulance**

   - Select pickup point and hospital

6. **Payment**

   - Patient can pay for the ride.

- **Ambulance**

1. **Register**

   - Driver can register using personal details.

2. **Login**

   - Driver can login in his personal account using id and password.

3. **Profile**

   - view & update profile

4. **Change Password**

   - can change the password within app

5. **Accept or reject booking**

   - Directions of pickup & drop point & navigation on google maps
   - Change status Picked/Dropped

CHAPTER 5

DESIGN

5.1) Introduction : System is created to solve problems. One can think of the systems approach as an organized way of dealing with a problem. In this dynamic world, the subject system analysis and design, mainly deals with the software development activities . Since a new system is to be developed, the one most important phases of software development life cycle is system requirement gathering and analysis. Analysis is a detailed study of various operations performed by a system and their relationship within and outside the system. Using the following steps it becomes easy to draw the exact boundary of the new system under consideration.

All procedures, requirements must be analysed and documented in the form of detailed DFDs, logical data structure and miniature specifications.

System analyses also include sub-dividing of complex process involving the entire system, identification of data store and manual processes.

5.2) System design

System design is the process of planning a new system or to replace the existing system. Simply, system design is like the blueprint for building, it specifies all the features that are to be in the finished product. System design phase follows system analysis phase. Design is concerned with identifying functions, data streams among those functions, maintaining a record of the design decisions and providing a blueprint the implementation phase. Design is the bridge between system analysis and system implementation. Some of the essential fundamental concepts involved in the design of application software are:

- Abstraction
- Modularity
- Verification

5.2.1) Abstraction is used to construct solutions to problem without having to take account of the intricate details of the various component sub problems. Abstraction allows system designer to make step-wise refinement, which at each stage of the design may hide, unnecessary details associated with representation or implementation from the surrounding environment.

5.2.2) Modularity is concerned with decomposing of main module into well-defined manageable units with well-defined interfaces among the units. This enhances design clarity, which in turn eases implementation, Debugging, Testing, Documenting and Maintenance of the software product. Modularity viewed in this sense is a vital tool in the construction of large software projects.

5.2.3) Verification is fundamental concept in software design. A design is verifiable if it can be demonstrated that the design will result in implementation that satisfies the customer's requirements. Verification is of two types namely.

- Verification that the software requirements analysis satisfies the customer's needs.
- Verification that the design satisfies the requirement analysis.

Some of the important factors of quality that are to be considered in the design of application software are:

Reliability: The software should behave strictly according to the original specification and should function smoothly under normal conditions.

Extensibility: The software should be capable of adapting easily to changes in the specification.

Reusability: The software should be developed using a modular approach, which permits modules to be reused by other application, if possible. The System Design briefly describes the concept of system design and it contains four sections. The first section briefly describes the features that the system is going to provide to the user and the outputs that the proposed system is going to offer. The second section namely Logical Design describes the Data Flow Diagrams, which show clearly the data movements, the processes and the data sources, and sinks, E-R diagrams which represent the overall logical design of the database, and high-level process structure of the system.

5.3) Preliminary Design: Preliminary design is basically concerned with deriving an overall picture of the system. Deriving entire system into modules and sub-modules while keeping Cohesion and Coupling factors in mind. Tools, which assist in preliminary design process, are Data Flow Diagrams.

5.4) Code design: The purpose of code is to facilitate the identification and retrieval for items of information. A code is an ordered collection of symbols designed to provide unique identification of an entity or attribute. To achieve unique identification there must be only one place where the identified entity or the attribute can be entered in the code; conversely there must be a place in the code for every thing that is to be identified. This mutually exclusive feature must be built into any coding system. The codes for this system are designed with two features in mind. Optimum human oriented use and machine

efficiency They are also operable i.e., they are adequate for present and anticipate data processing both for machine and human use.

5.5) Input /Output design : is a part of overall system design, which requires very careful attention. The main objectives of input design are:

- To produce a cost-effective method of input.
- To achieve the highest possible level of accuracy.
- To ensure that the input is acceptable to and understood by the user staff.

Outputs from computer systems are required primarily to communicate the results of processing to users. They are also to provide a permanent hard copy of these results for later consultation.

The various types of outputs are required by this system are given below:

- External outputs, whose destination is outside the concern and which require special attention because they, project the image of the concern.
- Internal outputs, whose destination is within the concern and which require careful design because they are the user's main interface within the computer.
- Operation outputs, whose use is purely within the computer department, E.g., program listings, usage statistics etc,

5.6) Chosen SE Methodology

5.6.1) Waterfall Process Model

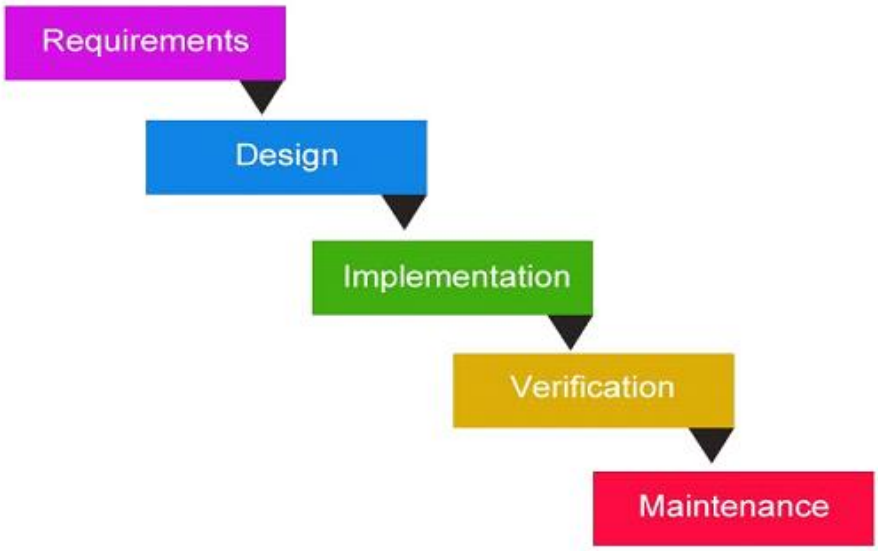

Fig. 2 : Waterfall Process Model

The waterfall process model is a documentation model. This model generates complete and comprehensive documents and responsible for the maintenance task because the feedback of user must fulfill on each phase of development.
In case of mistake on any stage referred back to source and the steps will be repeated by updating according to the demand.

The five stages are as follows

- **Analysis:** During this phase it will be checked that what is going on in development process and how the development should is achieved.

- **Design:**
  Basic Design: When the analysis phase is successfully completed then the second phase in which we will focus is the basic design of the application.

- **Technical Design/Detail Design:** After the basic design phase, we will enhance over design by improvements by placing the modules and programs of the basic design application on the suitable places.

- **Implementation:** In this phase the source code of the programs is written.

- **Testing:** In testing phase we will check the analysis and design phases accurately or precisely by continuously passing through the tasting process and in case of some bug during the testing process then the bug should be removed.

- **Integration:** In the phase of Integration, the company will implement the application for the user to use this application.

- **Maintenance:** This phase includes the management of the app through maintenance which will ensure that our design is implementing according to the requirement.

All the above phases approve the waterfall model referred a function in a systematic way which cause the development of the software.

5.6.2) Reason for chosen methodology

The waterfall model is a famous model for the systems development life cycle model. The waterfall model explains development method. Waterfall development has many goals at each development level where each phase is completed the model will move on the next phase and never return back.
The main advantage of the waterfall model is the completely control on the management. This process is useful for the on time project delivery such as each stage has been planned in detail. Joint application development (JAD), rapid application development (RAD) and the spiral model can be used as the replacement models of the waterfall model.

5.7) Major Milestones

Millstones	Planned start date	Planned Completion date
Analyzing	20-Apr-2021	10-May-2021
Designing	08-May-2021	15-May-2021
Development	20-May-2021	18-June-2021
Testing	02-June-2021	06-July-2021
Implement	25-June-2021	26-July-2021

Fig .3 : Major Milestone

5.8) Data flow diagrams

A data flow diagram (DFD) is a graphical representation of the flow of data through an information system. It shows how information is input to and output from the system, the sources and destinations of that information, and where that information is stored.

5.8.1) Context Level Diagram: (0 level diagram)

Also known as level 0 DFD. Represents the entire system in a single bubble where input and output data indicated by incoming and outgoing arrows. Here we can see the process name as '**online Ambulance Booking System'**, Where we have the inputs/outputs as: Login, Ambulance info, Booking info, Status, & Payment.
Here the user is interacting directly with the input/output parameters & are getting back a single answer in terms of yes or no.

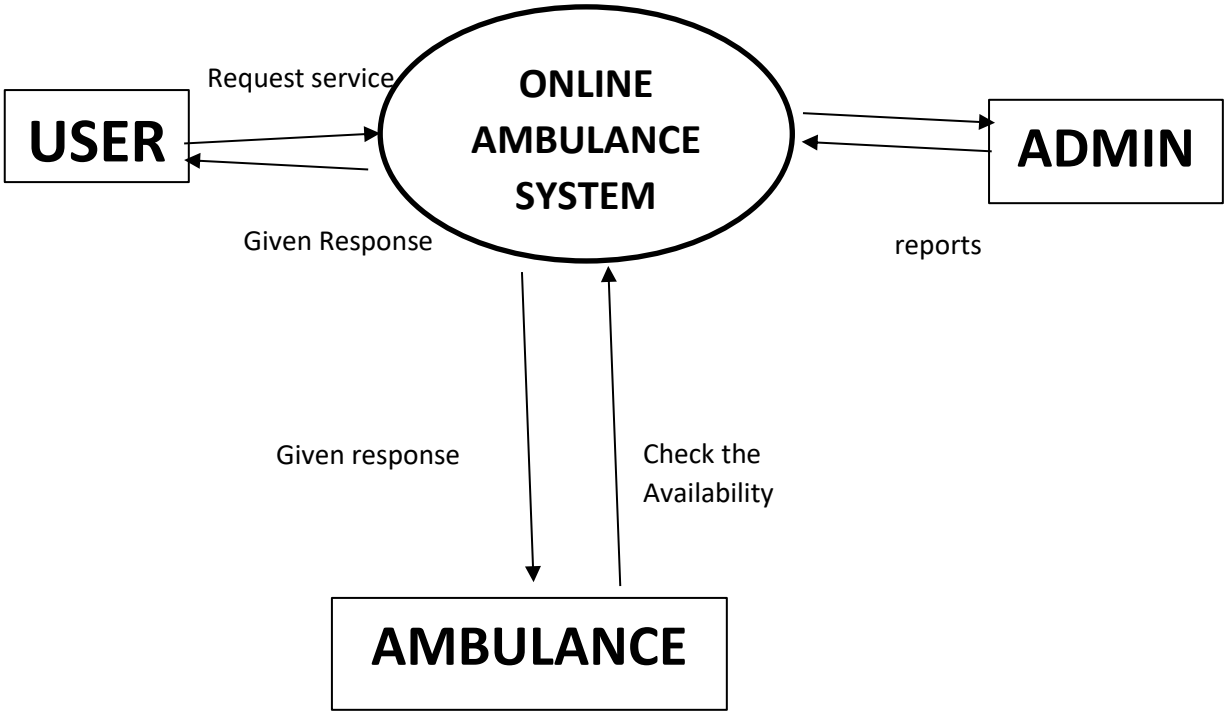

Fig .3 : 0 Level DFD

5.8.2) 1 - Level 1 DFD:

Under level 1 DFD we will be going through an overview of the system with it's respective databases from where the process will retrieve the data and will use to perform different processes. Level 1 can have maximum bubbles .

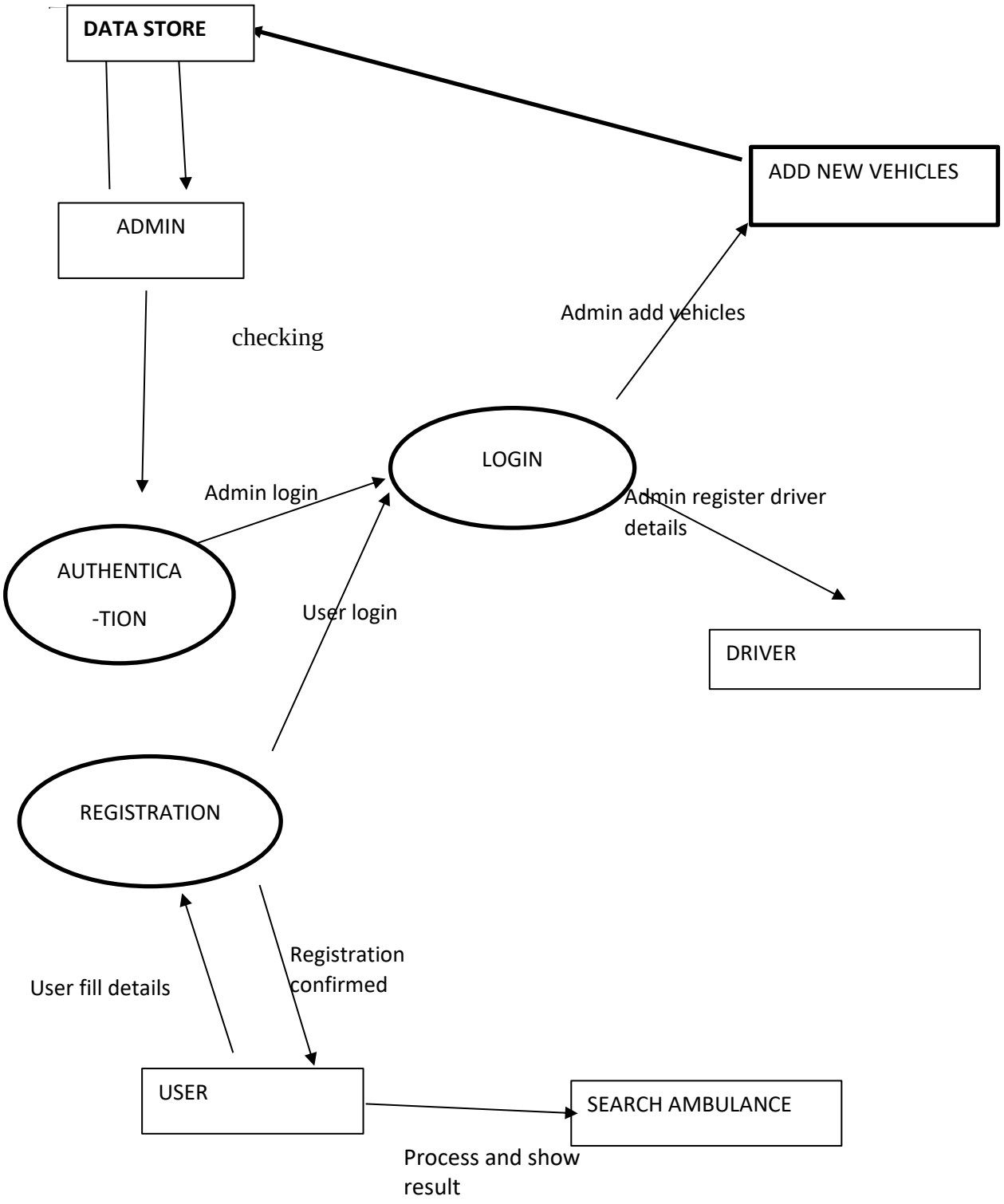

Fig 4 : 1 Level DFD

5.9) Entity relationship diagram:

The Entity-Relationship (ER) model was originally proposed by Peter in 1976 as a way to unify the network and relational database views. Simply stated the ER model is a

conceptual data model that views the real world as entities and relationships. A basic component of the model is the Entity- Relationship diagram which is used to visually represents data objects. Since Chen wrote his paper the model has been extended and today it is commonly used for database design For the database designer, the utility of the ER model is:

- it maps well to the relational model. The constructs used in the ER model can easily be transformed into relational tables.
- it is simple and easy to understand with a minimum of training. Therefore, the model can be used by the database designer to communicate the design to the end user.
- In addition, the model can be used as a design plan by the database developer to implement a data model in a specific database management software.

5.9.1) Connectivity and Cardinality

The basic types of connectivity for relations are: one-to-one, one-to-many, and many-to-many .A *one- to-one* (1:1) relationship is when at most one instance of a entity A is associated with one instance of entity B. For example, "employees in the company are each assigned their own office. For each employee there exists a unique office and for each office there exists a unique employee.

A ***one-to-many*** (1:N) relationships is when for one instance of entity A, there are zero, one, or many instances of entity B, but for one instance of entity B, there is only one instance of entity

A. An example of a 1:N relationships is a department has many employees each employee is assigned to one department

A ***many-to-many*** (M:N) relationship, sometimes called non-specific, is when for one instance of entity A, there are zero, one, or many instances of entity B and for one instance of entity B there are zero, one, or many instances of entity A. The connectivity of a relationship describes the mapping of associated

5.9.2) ER Notation

There is no standard for representing data objects in ER diagrams. Each modeling methodology uses its own notation. The original notation used by Chen is widely used in academics texts and journals but rarely seen in either CASE tools or publications by non- academics. Today, there are a number of notations used, among the more common are Bachman, crow's foot, and IDEFIX.

All notational styles represent entities as rectangular boxes and relationships as lines connecting boxes. Each style uses a special set of symbols to represent the cardinality of a connection. The notation used in this document is from Martin. The symbols used for the basic ER constructs are:

- **entities** are represented by labeled rectangles. The label is the name of the entity.
  - Entity names should be singular nouns.

- **relationships** are represented by a solid line connecting two entities. The name of the relationship is written above the line. Relationship names should be verbs
- **attributes**, when included, are listed inside the entity rectangle. Attributes which are identifiers are underlined. Attribute names should be singular nouns.
- **cardinality** of many is represented by a line ending in a crow's foot. If the crow's foot is omitted, the cardinality is one.
- **existence** is represented by placing a circle or a perpendicular bar on the line.

  Mandatory existence is shown by the bar (looks like a 1) next to the entity for an instance is required. Optional existence is shown by placing a circle next to the entity that is optional.

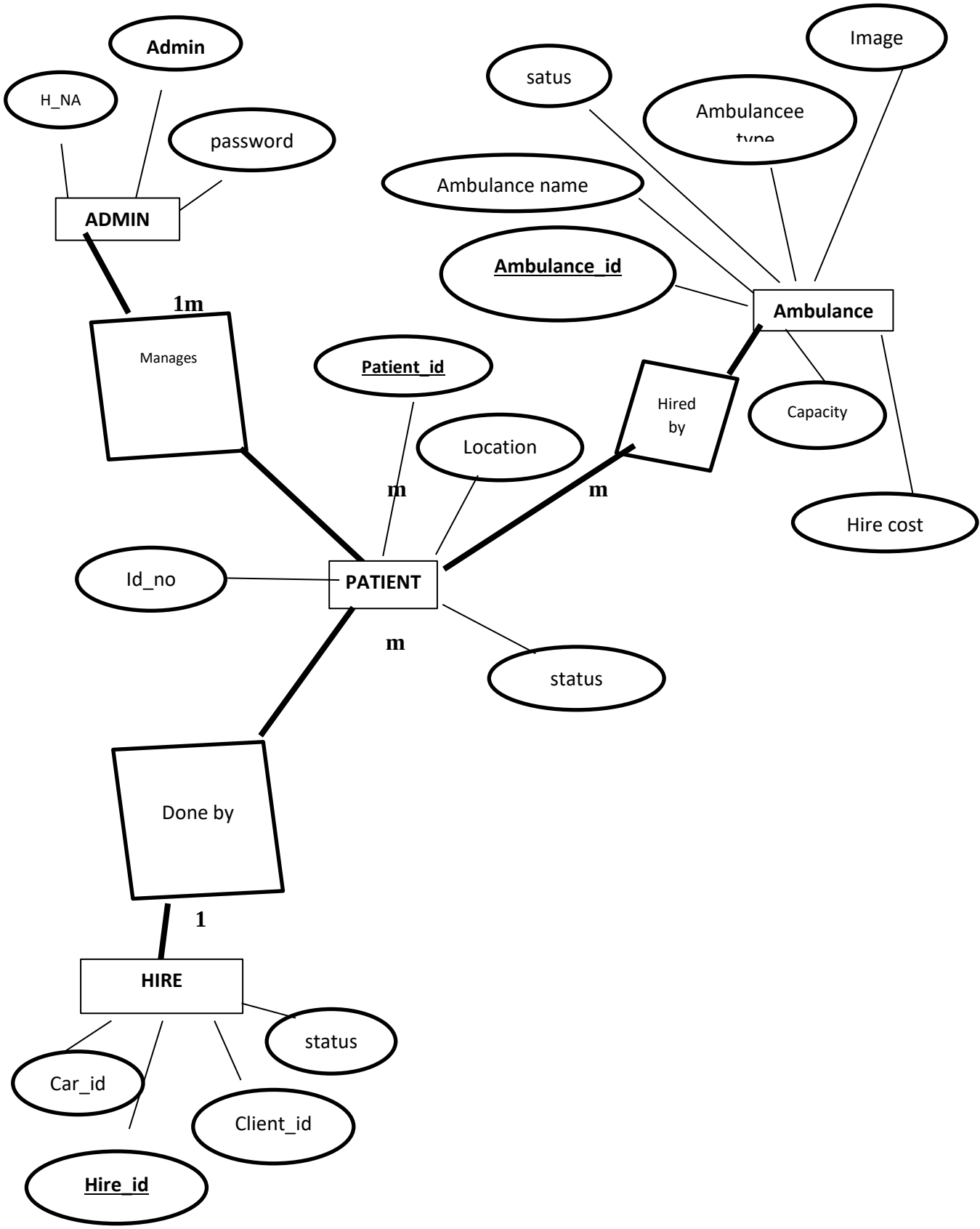

Fig 5 : E-R diagram

5.10) Purpose

The main purpose of the designing phase is to make a design that satisfy the application requirements and in the design phase SDLC process continues from “What question of the analysis to the how question”. In this phase, the overall software structure defines the examines and design which are very critical in the complete development cycle. This phase needs focus because in case of fault occur during the phase will make complexion in the development process.

5.10.1) General Process Diagram

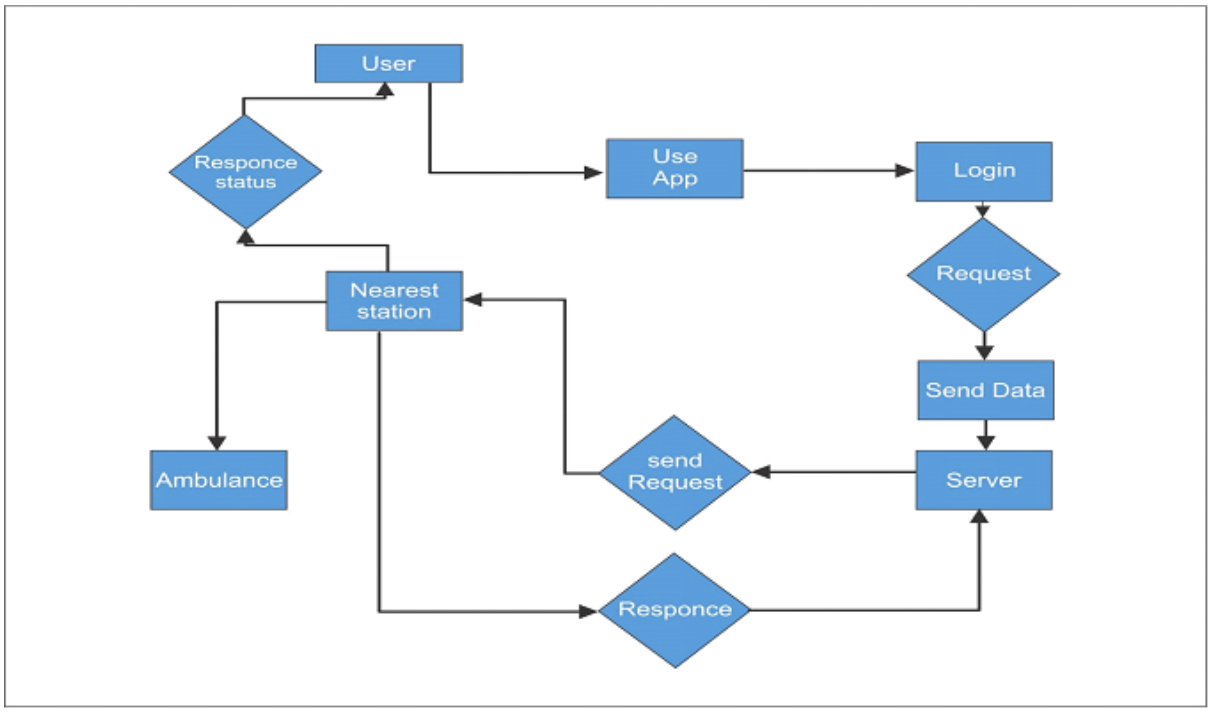

Fig 6 : General Process Diagram

5.10.2) Use Case Diagram

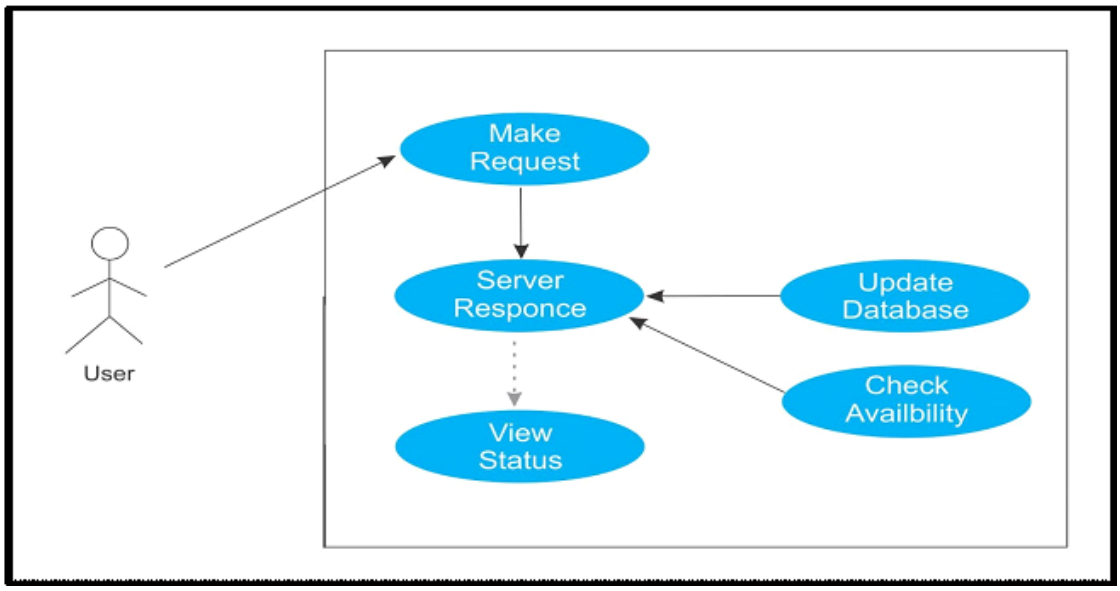

Fig . 7: Use case diagram

5.10.3) Sequence Diagram

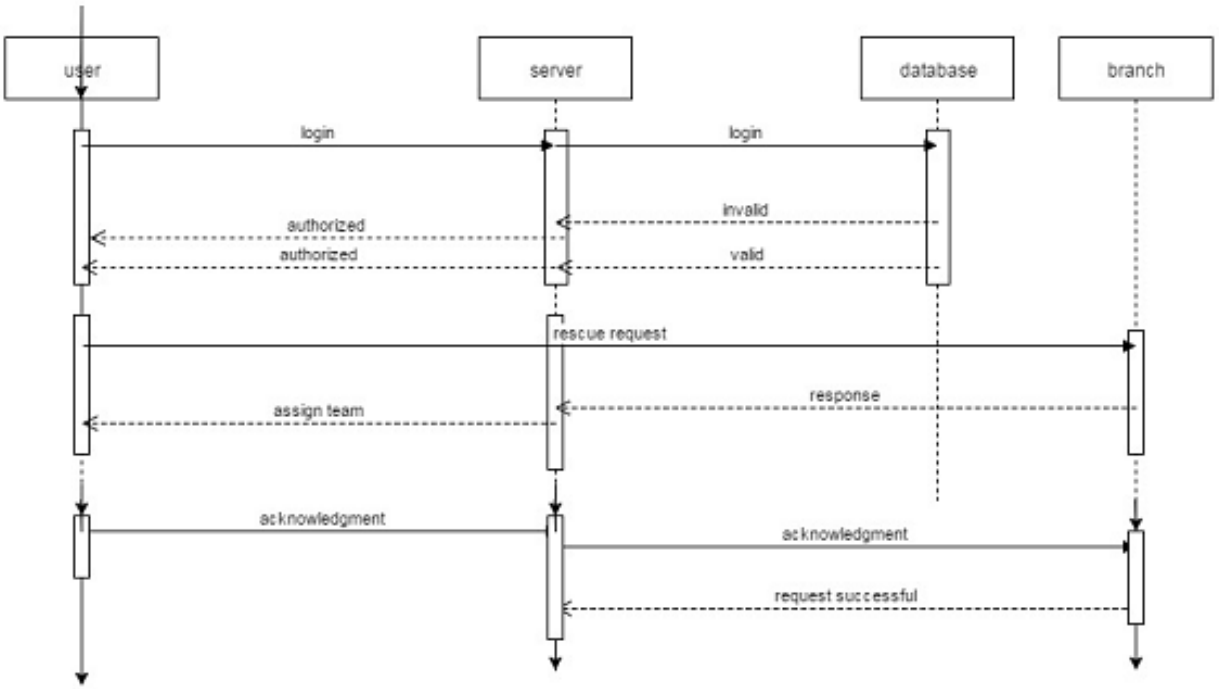

Fig 8 : Sequence Diagram

5.10.4) Tables in Databases

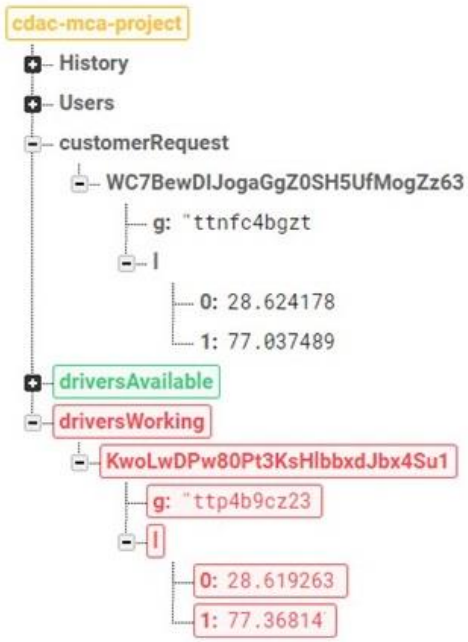

Fig 9 : Database table - 1

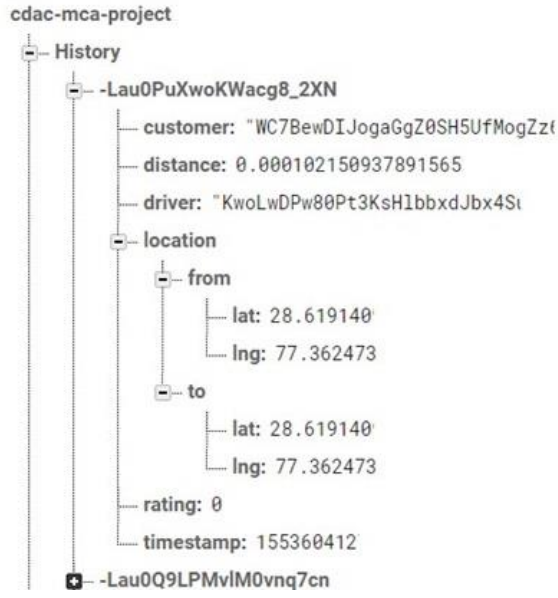

Fig 10 : Database table – 2

CHAPTER 6

FEASIBILITY STUDY

6.1) Introduction

Feasibility of the system in an important aspect, which is to be considered. The system needs to satisfy the law of economic, which states that the maximum output should be yielded in minimum available resources.

A feasibility analysis evaluates the project's potential for success; therefore, perceived objectivity is an essential factor in the credibility of the study for potential investors and lending institutions. There are five types of feasibility study—separate areas that a feasibility study examines, described below.

`6.1.1) Technical Feasibility

This assessment focuses on the technical resources available to the organization. It helps organizations determine whether the technical resources meet capacity and whether the technical team is capable of converting the ideas into working systems. Technical feasibility also involves the evaluation of the hardware, software, and other technical requirements of the proposed system. As an exaggerated example, an organization wouldn't want to try to put Star Trek's transporters in their building—currently, this project is not technically feasible.

6.1.2) Economic Feasibility

The Project Online Ambulance Booking System uses freely available development tools and provide the system as an open source system. Only the Maintenance Cost will be charged from the system users i.e.,.
JSP Software Libraries that are used in this system are free open source libraries.
Being a web application Online Ambulance Booking System will have an associated hosting cost. Since the system does not contain any multimedia data transfer, bandwidth required for the operation of this application is very low.

The system will follow the freeware software standards. No cost will be charged from the potential customers. Bug fixes and maintaining tasks will have an associated cost. At the initial stage the potential market space will be the local people with lots of emergencies and redundant seat booking will be automatically cancelled thus automating some manual tasks which will be greatly useful for the ambulance system..
So, the project is economically feasible.

This assessment typically involves a cost/ benefits analysis of the project, helping organizations determine the viability, cost, and benefits associated with a project before financial resources are allocated. It also serves as an independent project assessment and enhances project credibility—helping decision-makers determine the positive economic benefits to the organization that the proposed project will provide.

6.1.3) Legal Feasibility

This assessment investigates whether any aspect of the proposed project conflicts with legal requirements like zoning laws, data protection acts or social media laws. Let's say an organization wants to construct a new office building in a specific location. A feasibility study might reveal the organization's ideal location isn't zoned for that type of business. That organization has just saved considerable time and effort by learning that their project was not feasible right from the beginning.

Factors	**Explanation**
Inadequate estimation of project time, cost, scope and other resources.	We have gone through the scope, time & cost requirements of the project including the other resources needed.
Unrealistic Schedule	The timing or schedule is being checked under the schedule feasibility.
Unrealistic Budget	There is no much cost to build the project, as we have seen in the financial & economic feasibility.

Unclear Project Scope	The scope of the project is being clearly mentioned in the introductory part of the project documentation. The scope of the project is well defined & practical.
Insufficient Resources	There are enough members to complete the project in accordance with time. Another important resource is having machines that is also not insufficient.

The project is legally & ethically for the Citizens of India throughout. The project is being designed including the study concerning contracts, liability, violations and legal other traps frequently unknown to the technical staff. The data processing system complies with data protection act and the user data is kept secured so the project is legally feasible.

6.1.4) Operational Feasibility

This assessment involves undertaking a study to analyze and determine whether—and how well—the organization's needs can be met by completing the project. Operational feasibility 26 studies also examine how a project plan satisfies the requirements identified in the requirements analysis phase of system development.

6.1.5) Scheduling Feasibility

Scheduling the project in a well mannered way, we have a time of nearly 10 months to complete this web based project. Having 5 members working under this project group two of which will do the designing & coding while the other 3 members will deal with the other parameters included in the project. Accordingly if we plan up the project the given time is enough to build the project properly.
Based on these factors the project is SCHEDULE FEASIBLE.

This assessment is the most important for project success; after all, a project will fail if not completed on time. In scheduling feasibility, an organization estimates how much time the project will take to complete. When these areas have all been examined, the feasibility analysis helps identify any constraints the proposed project may face, including:

- Internal Project Constraints: Technical, Technology, Budget, Resource, etc.
- Internal Corporate Constraints: Financial, Marketing, Export, etc.

• External Constraints: Logistics, Environment, Laws, and Regulations, etc .

6.1.6) BEHAVIORAL FEASIBILITY:

The users of the application will adapt the changes as their waiting for bookings will get auto-cancelled .They will also get an opportunity of selecting the bookings and also can book in chain thus changes done will be reflected in both the placed boxes.The system is almost similar as that of present system with few added features so the users will be comfortable enough in using it. The major barriers or risk factors involved are:

We have tried to cover up the basic risk factors a project faces while it is being developed. Based on these six types of FEASIBILITY STUDY we have come to the conclusion that: OUR PROJECT WHICH IS BEING DEVELOPED IS FEASIBLE UNDER THESE FACTORS.

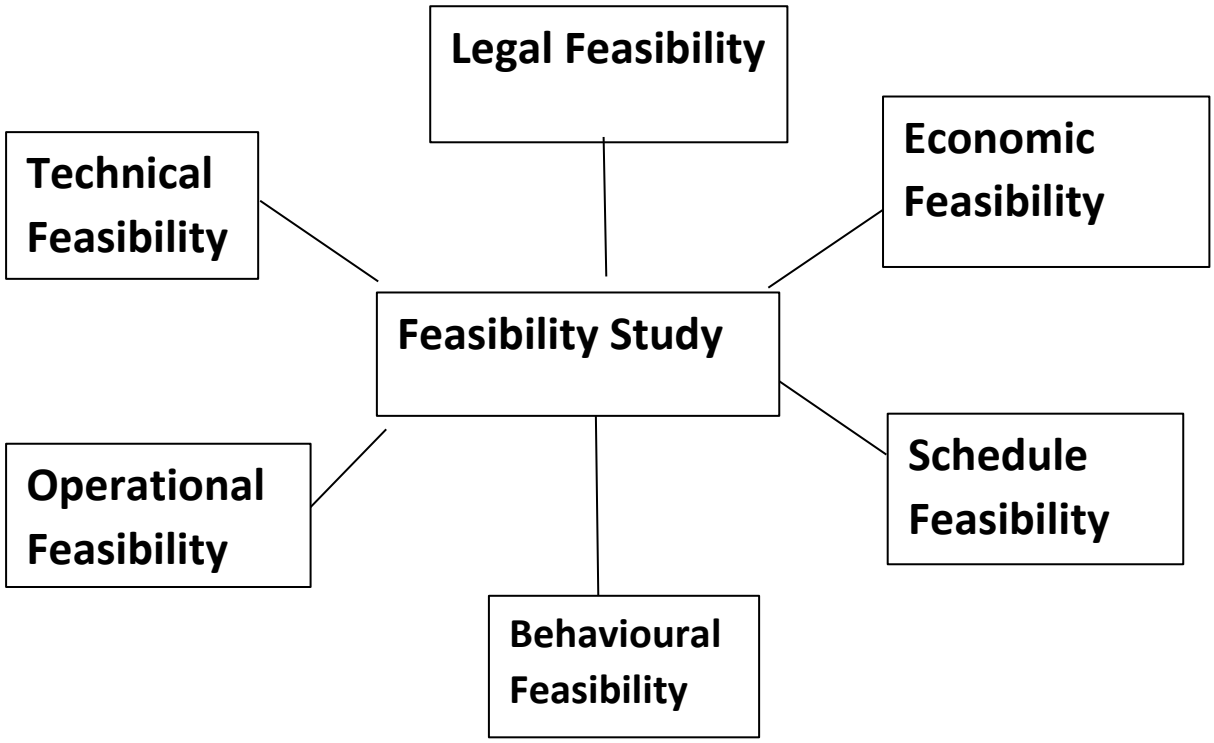

Fig 11: FEASIBILITY STUDY

6.2) Main aspects

There are three aspects of feasibility to be considered namely.

1. Technical
2. Operational
3. Economical

6.2.1) TECHNICAL:

In the technical aspects one may consider the hardware equipment for the installation of the software. The system being centralized will required very little hardware appliances. Hence this helps the system to work smoothly with limited amount of working capitals.

6.2.2) OPERATIONAL:

In the operational aspects may think of the benefits of the workload that many a personal may have to share. This is eased out and the required output may be retrieved in a very short time. Thus there is accuracy in the work on time is also saved there will be very little work that needs to be performed.

Resources that are required for this project includes:

- Programming Device (laptop & desktop)
- Hosting Space (Freely available)
- Programming tools (free open source server)
- Programming, designing, planning individuals

A proper need of planning and execution by the efficient members under a proper guidance is needed. We are building the project on Windows 10 platform which is capable of making & testing of the software product. As basically windows versions are preferred mostly in workplaces so it will be easy to consult the problems that arise or the required improvements. The software will be made more user friendly and more easy to handle from the back end so that users are comfortable using it.

As all the mentioned needs are met thus we can say that our project is operationally feasible.

6.2.3) ECONOMICAL:

Economical system is definitely feasible because the hardware requirement is less and the operational working for the system requires less number of recruits. This help introduction over-staffing and wastage funds. We studied on the position to evaluate solution. Most important factors in this study were tending to overlook the confusion inherent in system Development the constraints and the assumed studies. It can be started that it the feasibility study is to serve as a decision document it must answer three key questions.

1. Is there a new and better way to do the job that will benefit the user?

2. What are the costs and savings of the alternatives?
3. What is recommended?

On these questions it can be explained that feasibility study of the system includes following different angles.

Feasibility Study being the first step of the project analysis, it helps to get an understanding on whether the project is possible to build i.e., whether it is feasible or not. Discussing over the different parameters that a project has to pass through, all the risk factors, the financial, economic, technical, operational, time & risks.

Each of the technologies are freely available and the technical skills required are manageable. Time limitations of the product development and the ease of implementing using these technologies are synchronized.
Initially the web site will be hosted in a free web hosting space, but for later implementation it will be hosted in a paid web hosting space with a sufficient bandwidth. Bandwidth required in this application is very low, since it does not incorporate any multimedia aspect.
From these point of view the project is **TECHNICALLY FEASIBLE**.

CHAPTER 7

DEVELOPMENT

7.1) Introduction

The development plan describes the solution development process used for the project. This phase consists of guidelines and process that are created by the development team during the solution.

The development role manages the processes of creating the development plan. In this phase the main focus is on the key aspects of the development process which are going to be utilized. This may also include standards and protocols that are required by participating organization. It may also include establishment priorities and budget restriction.

7.2) CONCEPT AND TECHNIQUES:

7.2.1) Smartphones

Smartphones are mobile phones that have considerably a lot of functionality than a regular mobile phone. they're mobile computers. Smartphones are powerful and versatile as a result of built in sensors, powerful processors, multiple network interfaces and a high amount of memory for such small devices.

7.2.2) Android

Android is a Linux kernel based open-source mobile operating system which was developed by Google for phones, tablets, watches, TVs, cars and other electronic devices [10]. Being open-source, everyone has full access to the Android source code, with one restriction, it cannot be used for personal profit or any financial gain. It is the most popular mobile operating system. Android alternatives include iOS by Apple, Windows Phone, BlackBerry, Symbian and a few others. We chose Android as it is the operating system that have the most programming experience with. Android's market dominance and cheap application release costs were also deciding factors.

7.2.3) Android Studio

Android Studio is the primary Android IDE (Integrated Development Environment). It provides an Android developer all the necessary tools to develop an Android application. More specifically, it allows writing code with auto-completion tools, debugging, testing , running the code on a physical or a virtual device and setting programming related or visual preferences. Java and XML are the only languages required to create Android applications with Android Studio . Android Studio does not have any alternatives worth considering. It is possible to develop Android applications with Eclipse by using the Android Developer Tools plugin, but it is no longer supported by Google.

7.2.4 Java

Java is a class based general-purpose, object-oriented programming language. It is a high-level, strongly typed language with garbage collection that incorporates concepts from several languages including C and C++, but it is not entirely the same. For example, Java does not allow writing unsafe code that might cause vulnerabilities and unexpected behavior. The main building blocks of a Java application are classes, interfaces and packages.

7.2.5) Google Play Services

Google Play services provide application developers a comprehensive set of useful features, for example, Maps and Google+ sign-in. The services include the Google Play services client library and the Google Play services Android Package Kit. The client library makes it possible to access any feature with a user's account and deals with different issues that may occur when using the services. The Android Package Kit communicates with the client library and provides access to a specific service when necessary. The use of Google Play services is a must when using Firebase. Important functionalities in Smart Rescue System, for example, viewing on a map and obtaining a user's location also rely on the services.

7.2) Google Location API

The Google Location Services API is part of Google Play Services, provides a more robust, high-level framework that automatically chooses a suitable location provider and power management. Location Services also provides new features like activity detection which is not provided by framework API. Developers should consider using Location services API if they are using framework API and also if they are making their apps location –aware.

7.2.5) Android Google Map API

The Google Maps Android API is a service which is part of the Google Play services library. Allows access to Google Maps server automatically,

displaying map, downloading data, and map gesture response. It also allows to add markers, polygons, and basic map overlays, and to transition the user's context of a specific map area .

7.2.6) Google Places API

Web Service The Google Places API Web Service is a service which returns information about places like locations, geographic, establishments and prominent points of interest using HTTP requests . The main alternative of Google Places API is Foursquare Venues. In free version Google Places allows 150000 queries per day and Foursquare Venues allows 120 000 queries per day .These two services are mostly similar, we chose Google Places API because we were more familiar and experienced using it.

7.2.7) Firebase

Firebase is one of many implementations of the BaaS model. Like other BaaS implementations, Firebase provides storage, push notifications, user authentication and a database. Other than the basic BaaS features, Firebase also give a test lab that permits testing a Firebase connected application with different configurations and devices. A feature that makes Firebase different from other BaaS implementations is the realtime database. When new data is added to the database, it becomes accessible instantly to all the users of the application.

7.3 Development and build Environment

This section describes the development and built environment and how it will be managed. This section also includes information of control, design, requirements, source code tools, OS or other software installed.

7.3.1) Tools & Technologies

- **4.4.1 Development Tools**

  - Android Studio
  - FireBase

- **4.4.2 Database Management System**

  - SQLite

- **4.4.3 Operating System**

  - Windows 7 or latest

- **4.4.4 Other Tools/Technologies**

  - HTML
  - XML

Working Of Project

Welcome Page

- This page will allow user to choose whether he/she is a patient or a Ambulance Driver.

- After this the user will redirected to there respective login page.

Fig 12 : Welcome Page screenshot

Signup Page :

- You have to create your account if it not created earlier.

- User can create account by entering user name and password

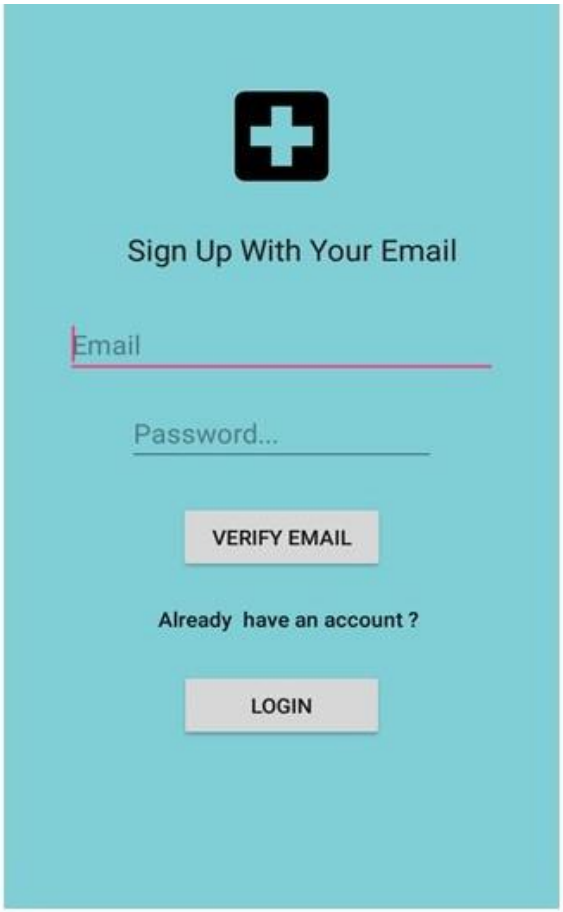

Fig 13 : SignUp Page

Login

- User have to provide email and password for registration .After that only all the feature can be accessible by the user.

- Already registered user will authenticate themselves by providing there email id password

Fig 14 : Login Screen

Password Reset :

- This module help to reset our password by entering email id here.
- After verification of email id user can reset password.

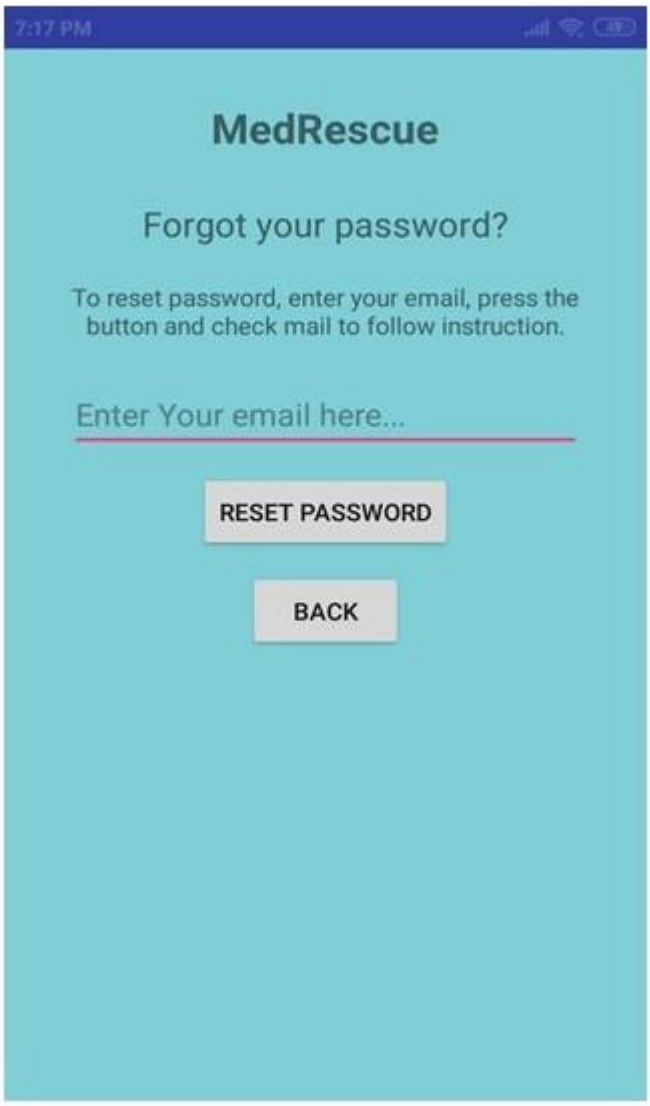

Fig 15 : Forgot Password

Request an ambulance :

This module works just like a modern cab booking facility .User's current location will be fetched by device's GPS . User have to provide drop location (medical facility) . Driver access this data to reach that location.

Flow of Events (User side):

- First user's location will be fetched.
- User will request for ambulance.
- Nearest ambulance will be shown in the map according to the user;s location.

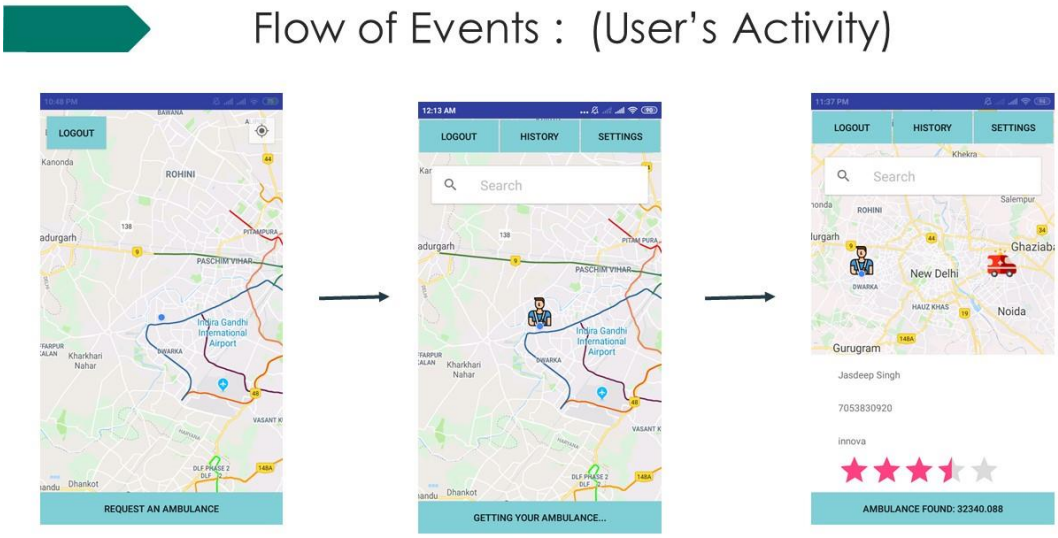

Fig 16 : Flow Of User Activity

Flow of Events : (User's Activity)

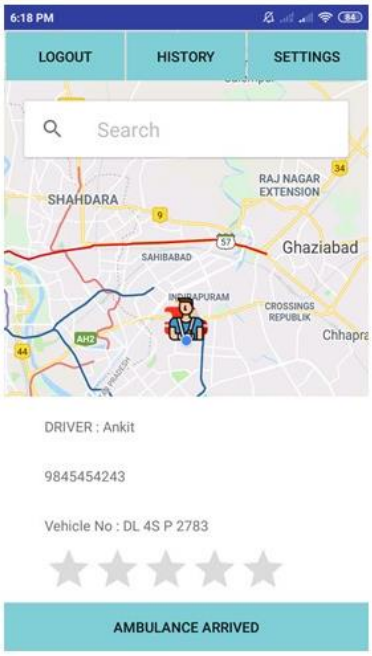

Fig 17 : Flow Of Event

Pickup Request (For Driver) :

- Driver can specify ,whether they are working or not by tapping on toggle switch.
- Ambulance Driver will receive pickup request from patient.
- Driver can accept the pickup request and then route will be shown from driver's location.

Flow of events (driver Side) :

- Driver receive the request of pickup .
- Driver will accept the pick up request.

- Driver will head to patient's location.
- After pickup driver will drop the patient.

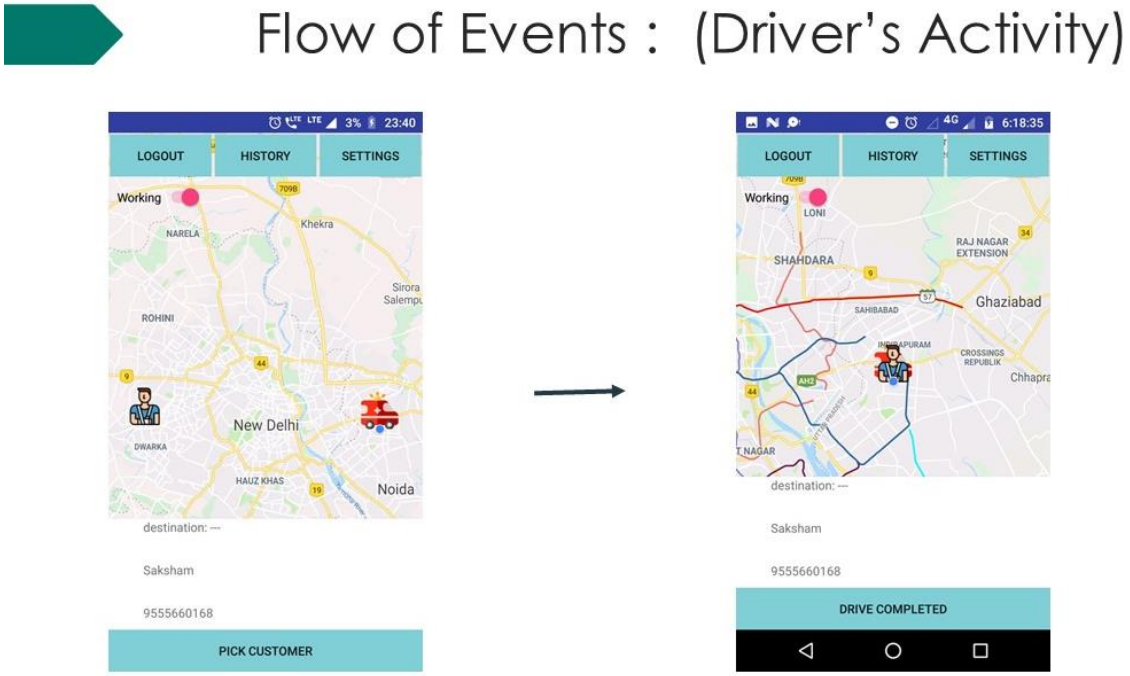

Fig 18 : Driver Activity

7.4) Guidelines and Standards

This section provides references to all standards and guidelines to be used by the project. Add features as needed for the project. Establishing guidelines and standards before development work begins ensure that all development team members are made aware of the expectations.

CHAPTER 8

TESTING

8.2) Introduction

Software Testing is a critical element of software quality assurance and represents the ultimate review of specification, design and code generation. The increasing visibility of software as a system element and the attendant “costs” associated with a software failure are motivating forces for well planned, thorough testing.

8.1) Objective

Testing is the way towards executing a program by removing the bugs. This section includes detection of errors in any case, not the accuracy of a program.
Testing is the significant quality measure utilized during software development. After coding phase, computer programs are available for testing purpose.
An essential part of a test case is a definition of the expected output or conclusions. A programmer should avoid trying to test his or own program. A programming company should not test its own program. Test cases must be composed unexpected, expected, valid and invalid conditions.
The probability of the errors in a program is proportional to the number of bugs found. System testing is really a series of various tests whose main role is to completely practice the computer based system and the reason for each test is different.
During testing we confirm that the product is doing exactly according to our demand. Testing is the last verification and validation action. In the testing phase we attempt to accomplish the following objectives to ensure the quality of the product, to find and eliminated the bugs, to detect functionalities of the product, to approximate the accuracy of the system.

8.3) Testing Objectives :

The following are the testing objectives: -Testing is a process of executing a program with the intent of finding an error. -A good test case is one that has a high probability of finding an as-yet-undiscovered error -successful test is one that uncovers an as yet undiscovered error.

8.4) **Testing Principles**

The basic principles that guide software testing are as follows:

- All tests should be traceable to customer requirements.
- Tests should be planned long before testing begins.the parate principle applies to software testing.

Pareto principle states that 80 percent of all errors uncovered during testing will likely be traceable to 20 percent of all program components. Testing should begin “in the small “and progress toward testing “in the large.” Exhaustive testing is not possible. 59

8.5) Defects and failures

Not all software defects are caused by coding errors. One common source of expensive defects is caused by requirements gaps, e.g., unrecognized requirements, that result in errors of omission by the program designer. A common source of requirements gaps is non-functional requirements such as testability, scalability, maintainability, usability, performance, and security.

Software faults occur through the following process. A programmer makes an error (mistake), which results in a defect (fault, bug) in the software source code. If this defect is executed, in certain situations the system will produce wrong results, causing a failure. [12] Not all defects will necessarily result in failures. For example, defects in dead code will never result in failures. A defect can turn into a failure when the environment is changed. Examples of these changes in environment include the - 137 - software being run on a new hardware platform, alterations in source data or interacting with different software.[12] A single defect may result in a wide range of failure symptoms.

8.6) Compatibility

A frequent cause of software failure is compatibility with another application, a new operating system, or, increasingly, web browser version. In the case of lack of backward compatibility, this can occur (for example...) because the programmers have only considered coding their programs for, or testing the software upon, "the latest version of" this-or-that operating system. The unintended consequence of this fact is that: their latest work might not be fully compatible with earlier mixtures of software/hardware, or it might not be fully compatible with another important operating system. In any case, these differences, whatever they might be, may have resulted in (unintended...) software failures, as witnessed by some significant population of computer users.

This could be considered a "prevention oriented strategy" that fits well with the latest testing phase suggested by Dave Gelperin and William C. Hetzel, as cited below

8.7) Input combinations and preconditions

A very fundamental problem with software testing is that testing under all combinations of inputs and preconditions (initial state) is not feasible, even with a simple product. This means that the number of defects in a software product can be very large and defects that occur infrequently are difficult to find in testing. More significantly, non-functional dimensions of quality (how it is supposed to be versus what it is supposed to do) -- for example, usability, scalability, performance, compatibility, reliability -- can be highly subjective; something that constitutes sufficient value to one person may be intolerable to another.

8.8) Static vs. dynamic testing

There are many approaches to software testing. Reviews, walkthroughs or inspections are considered as static testing, whereas actually executing programmed code with a given set of test cases is referred to as dynamic testing. The former can be, (and unfortunately in practice often is...) omitted, whereas the latter takes place - 138 - when programs begin to be used for the first time - which is normally considered the beginning of the testing stage. This may actually begin before the program is 100% complete in order to test particular sections of code (modules or discrete functions). For example, Spreadsheet programs are, by their very nature, tested to a large extent "on the fly" during the build process as the result of some calculation or text manipulation is shown interactively immediately after each formula is entered

8.9) LEVEL OF TESTING

There are different levels of testing

- Unit Testing
- Integration Testing
- System Testing

8.9.1) Unit testing

Unit testing focuses verification effort on the smallest unit of software design, the module. The important control parts are tested to uncover with in the boundary of the module. The module interface is tested to ensure that the information properly flows into and out of the program unit and boundary conditions are tested to ensure that the modules operate properly at boundaries established to limit or restrict processing. Test date is provided through testing screens.

8.9.2) Integration testing :

Integrating testing is a systematic technique for constructing Program structure while conducting tests to uncover error associates with interfacing .The objective is to take unit modules and built a program structure that has been directed by design.

- Integration Testing will test whether the modules work well together.

- This will check whether the design is correct.
- Integration can be done in 4 different ways:

8.9.3) System testing : System testing is the process of testing the completed software as a part of the environment it was created for. It is done to ensure that all the requirements specified by the customer are met. System testing involves functional testing and performance testing.

System Testing will contain the following testing :

- Functional Testing
- Performance Testing.

• **Function Testing** will test the implementation of the business needs.

• **Performance Testing** will test the non-functional requirements of the system like the speed, load etc

8.10) Some important observtions

System Testing and Validation Results. System testing was done after the system was duly coded. Individual modules of the system were checked to ensure they are fully functional units before the integrating them. This was done by examining each unit; each script was checked to ensure that it functions as required and that it performed exactly as intended. The success of each individual unit gave us the go ahead to carryout integration testing. The system was validated using a short questionnaire that was filled by representatives of the users who were let to interact with the system using test data and provided feedback about the system features. This was done to assess if the system met their needs and requirements as regards. It was found out that the system performed in conformance to the then defined user needs and requirements. Results of the validation are shown as percentages of respondents against each requirement.

8.11) Testing Test Scenarios

1.Check if the page load time is within the acceptable range.

2.Check the page load on slow connections.

3.Check the response time for any action under a light, normal, moderate, and heavy load conditions.

4.Check the performance of database stored procedures and triggers.

5.Check the database execution time.

6.Check for load testing of the application.

7.Check for the Stress testing of the application.

8. Check CPU and memory usage under peak load conditions. We have checked for scenarios and find that our system performing well in the circumstances.

8.11.1) TEST CASE RESULT SUMMARY

TestCase#	Description	Result
TC#1	Loading the home page	Passed
TC#2	Login	Passed
TC#3	Validating	Passed
TC#4	Content	Passed
TC#5	Course page loading	Passed
TC#6	Reports page loading	Passed
TC#7	Logout	Passed

8.12) VERIFICATION AND VALIDATION (V&V)

The objectives of verification, validity activities are to assess and improve the quality of the work products generated during development and modification of the software. Quality depends upon the various attributes like correctness, completeness, consistency, reliability, usefulness, usability, efficiency and conformance to standards.

The terms verification and validation are used synonymously. These are defined as under:

Verification: "Are we building the product right?"

Validation: "Are we building the right product?"

Verification activities include proving, testing, and reviews. Validation is the process of evaluating software at the end of the software development to ensure compliance with the software requirements. Testing is a common method of validation. Clearly, for high reliability we need to perform both activities. Together, they are often called V&V activities.

The major V&V activities for software development are inspection, reviews, and testing (both static and dynamic). The V&V plan identifies the different V&V tasks for the different phases and specifies how these tasks contribute to the project V&V goals. The methods to be used for performing these V&V activities, the responsibilities and milestones for each of these activities, inputs and outputs for each V&V task, and criteria for evaluating the outputs are also specified.

The two major V&V approaches are testing and inspections. Testing is an activity that can be generally performed only on code. It is an important activity and is discussed in detail in a later chapter. Inspection is a more general activity that can be applied to any work product, including code. Many of the V&V tasks are such that for them, an inspection type of activity is the only possible way to perform the tasks (e.g. trace ability and document evaluation). Due to this, inspections play a significant role in verification.

CHAPTER 9

CONCLUSION

Our conclusion is that as we have developed our project and it work as we have expected then it will be very successful project which will be useful in our day to day life. And in accordance with smart city project we will be able to go one step forward in health sector. As of now, there are only a few projects working to aid ambulance and emergency facilities to needy. With India, ”Dial 108” has spread its roots in ERA. location based ambulance service application is an advancement to such existing projects with a user friendly and blood inventory facility. Our summing-up is, we have developed our project to handle emergency health situations and to evacuate the patient to a nearby and communicated hospital. In this article, an approach is extended toward rescuing a sufferers‟ life in a more accelerated approach as feasible. It is extremely essential for sufferers in the matter of crises since it conserves time.With the help of this Project,the emergency vehicle can contact the user or victim as the position is followed or supplied within the application furthermore can produce the essential tools that are expected for the patient’s well-being.

CHAPTER 10

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