A SOFTWARE REQUIREMENT DOCUMENT ON

## EMERGENCY AMBULANCE SERVICE ANDROID APP

## USING ANDROID STUDIO

Submitted to

KIIT Deemed to be University

In Partial Fulfillment of the Requirement for the Award

BACHELOR’S DEGREE IN

COMPUTER SCIENCE & ENGINEERING

by

DEBDIP DEY - 1705033

PRABHAS MONDAL - 1705514

SUBHENDU KUNDU - 1705085

UNDER THE GUIDANCE OF

## PROF: SANTOSH KUMAR PANI



SCHOOL OF COMPUTER ENGINEERING

### KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY

BHUBANESWAR, ODISHA - 751024

**KIIT Deemed to be University**

School of Computer Engineering

Bhubaneswar, ODISHA 751024

  
  
  
  
  
  
  
  
CERTIFICATE

This is certify that the project entitled

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is a record of bonafide work carried out by them, in the partial fulfilment of the requirement for the award of Degree of Bachelor of Engineering (Computer Sci-ence & Engineering OR Information Technology) at KIIT Deemed to be university, Bhubaneswar. This work is done during year 2019-2020, under our guidance.

Date: / /

Prof. Santosh Kumar Pani

(Project Guide)

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#### Debdip Dey

**Prabhas Mondal**

#### Subhendu Kundu

**ABSTRACT**

An **emergency** is a situation that poses an immediate risk to [health](https://en.wikipedia.org/wiki/Health" \o "Health), [life](https://en.wikipedia.org/wiki/Life" \o "Life), [property](https://en.wikipedia.org/wiki/Property" \o "Property), or [environment](https://en.wikipedia.org/wiki/Natural_environment" \o "Natural environment). Most emergencies require urgent intervention to prevent a worsening of the situation, although in some situations, mitigation may not be possible and agencies may only be able to offer palliative care for the aftermath.

While some emergencies are self-evident (such as a [natural disaster](https://en.wikipedia.org/wiki/Natural_disaster" \o "Natural disaster) that threatens many lives), many smaller incidents require that an observer (or affected party) decide whether it qualifies as an emergency. The precise definition of an emergency, the agencies involved and the procedures used, vary by jurisdiction, and this is usually set by the [government](https://en.wikipedia.org/wiki/Government" \o "Government), whose agencies ([emergency services](https://en.wikipedia.org/wiki/Emergency_service" \o "Emergency service)) are responsible for emergency planning and management.

An **ambulance** is a medically equipped [vehicle](https://en.wikipedia.org/wiki/Vehicle" \o "Vehicle) which transports patients to treatment facilities, such as hospitals. In some instances, out-of-hospital medical care is provided to the patient.

Ambulances are used to respond to medical emergencies by [emergency medical services](https://en.wikipedia.org/wiki/Emergency_medical_services" \o "Emergency medical services). For this purpose, they are generally equipped with flashing [warning lights](https://en.wikipedia.org/wiki/Emergency_vehicle_lighting" \o "Emergency vehicle lighting) and [sirens](https://en.wikipedia.org/wiki/Siren_(noisemaker)" \o "Siren (noisemaker)). They can rapidly transport [paramedics](https://en.wikipedia.org/wiki/Paramedic" \o "Paramedic) and other first responders to the scene, carry equipment for administering [emergency care](https://en.wikipedia.org/wiki/Emergency_medicine" \o "Emergency medicine) and transport patients to hospital or other definitive care. Most ambulances use a design based on [vans](https://en.wikipedia.org/wiki/Van" \o "Van) or [pick-up trucks](https://en.wikipedia.org/wiki/Pick-up_truck" \o "Pick-up truck). Others take the form of [motorcycles](https://en.wikipedia.org/wiki/Motorcycle_ambulance" \o "Motorcycle ambulance), cars, buses, [aircraft](https://en.wikipedia.org/wiki/Air_medical_services" \o "Air medical services) and [boats](https://en.wikipedia.org/wiki/Water_ambulance" \o "Water ambulance).

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## INTRODUCTION

## Purpose

The primary focus of an **Ambulance Service** Team is two-fold: The first is to reach people in emergency situations as quickly as possible and administer life-saving first-aid on the spot. The second is to transport the sick or injured patient as quickly as possible to the appropriate healthcare facility for further care.

Emergency medical services (EMS), also known as ambulance services or paramedic services, are [emergency services](https://en.wikipedia.org/wiki/Emergency_service" \o "Emergency service) which treat illnesses and injuries that require an urgent medical response, providing out-of-hospital treatment and transport to definitive care. They may also be known as a first aid squad, FAST squad, emergency squad, [rescue squad](https://en.wikipedia.org/wiki/Rescue_squad" \o "Rescue squad), ambulance squad, ambulance corps, life squad or by other [initialisms](https://en.wikipedia.org/wiki/Acronym" \o "Acronym) such as EMAS or EMARS.

## Document Conventions

The document is written on ARIAL font with font size of 12. Headings the written at BOLD. All diagrams are mentioned with TITLE.

## Intended Audience and Reading Suggestions

The document is intended for, such as developers, project managers, marketing staff, users, testers, and documentation writers. Describe what the rest of this SRS contains and how it is organized. The document should be read in the sequence that is to be written.

## Project Scope

The project focus on the reducing the number of deaths caused due to emergency condition like accidents, heath problems of old people or pregnant women.

# Overall Description

## 2.1 Product Perspective

This product is a new, self-contained product based on the present emergency condition of our society. It will help users to get ambulance services in any emergency condition. People will not have to call and wait for ambulance. Using this product users can track the ambulance.

## 2.2 Product Features

This product provides ambulance services to the users in emergency condition. In very serious case the software automatically selects the nearest located hospital from where the ambulance will come. Or user can even select the hospital from where user want an ambulance. This product only provides the ambulance services from respective hospitals in users locality

## 2.3 User Classes and Characteristics

This product has 4 users.

1. Customers :- Use the ambulance service provides by the product.
2. Hospitals :- Will register and add drivers for their respective hospitals.
3. Drivers :- Will pick up the customers from the location with their ambulance.
4. Admin :- Controls all activities.

## 2.4 Operating Environment

This products will primarily be launched on ANDROID operating system with primary working version of Android 4.4 KitKat. Later we will work on IOS as well as WINDOWS

and WEB.

## 2.5 Design and Implementation Constraints

1. The global schema, fragmentation schema, and allocation schema.
2. There will be 3 application (one for hospital, one for drivers, one for customers)
3. FireBase Database commands for above queries/applications
4. How the response for application 1, 2 and 3 will be generated. Assuming these are global queries. Explain how various fragments will be combined to do so.
5. Implement the database at least using a centralized database management system.

# 

# External Interface Requirements

## 4.1 User Interfaces

Our software is an android app running on android OS. Any user having an android device with ANDROID version 4.4 and above can use this app.

## 4.2 Hardware Interfaces

User need a android device to use this software. Map is the most important interface in this software. All data are stored on online database.

## 4.3 Software Interfaces

The software is build on ANDROID operating system with minimum android version 4.4. The database use is FIREBASE realtime database.we have used google apis for maps and other purpose also. Its main component is GOOGLE MAPS services. Many libaries like GEOFIRE, GOOGLE MAPS, FIREBASE are used. The whole software is built on ANDROID STUDIO 3.4.

# 

# Other Nonfunctional Requirements

## 5.1 Performance Requirements

Performance of a system the following must be clearly specified:  
• **Response Time**

The response time of the software depends upon the HOSPITAL response or can depend on the response of the driver of the ambulance.  
• **Workload**

Since we are using firebase database therefore we have very limited querying and indexing, No aggregation, No map reduce, Can't query or list users or stored files.  
• **Platform**

The products is android base so use should have a android smartphone with min android version 4.4.

## 5.2 Safety Requirements

There is no possible loss, damage or harm that user will have using this software. This app monitors your current location.

## 5.3 Security Requirements

The user need not to worry about his/her data. It is fully secured. User should have a gmail id and a working phone number for registration. OTP will be sent to the mobile number.

## 5.4 Software Quality Attributes

The software is very adaptable and weasy to use because of its simple design. The software is available easily on google play store. It is maintained regularly from our side. The products is very robust and is tested through various phases/

**SYSTEM DESIGN**

System design is to organize the software modules in such a way that are easy to develop and change. Structured design techniques helped us to deal with the size and complexity of programs. System design plays a very important role in developing a software. If any pre-existing code needs to be understood, organized and pieced together system design will help us in it.

We have used the Bottom up approach in this Project.

**Bottom-up approach** The design starts with the lowest level components and subsystems. By using these components, the next immediate higher level components and subsystems are created or composed. The process is continued till all the components and subsystems are composed into a single component, which is considered as the complete system.

To be precise we used RAD model to build this app. RAD model distributes the analysis, design, build and test phases into a series of short, iterative development cycles. It focuses on input-output source and destination of the information. It emphasizes on delivering projects in small pieces; the larger projects are divided into a series of smaller projects. The main features of RAD model are that it focuses on the reuse of templates, tools, processes, and code.

RAD model distributes the analysis, design, build and test phases into a series of short, iterative development cycles.

The four phases of RAD model are-

### 5.2 Business Modeling

The information flow among business functions is defined by answering questions like what data drives the business process, what data is generated, who generates it, where does the information go, who process it and so on.

### 5.3 Data Modeling

### The data collected from business modeling is refined into a set of data objects (entities) that are needed to support the business. The attributes (character of each entity) are identified, and the relation between these data objects (entities) is defined.

### 5.4 Process Modeling

The information object defined in the data modeling phase are transformed to achieve the data flow necessary to implement a business function. Processing descriptions are created for adding, modifying, deleting, or retrieving a data object.

### 5.5 Application Generation

The actual system is built and coding is done by using automation tools to convert process and data models into actual prototypes.

Using RAD Model out of all SDLC models have been quite useful for us in following ways-

* Changing requirements can be accommodated.
* Progress can be measured.
* Iteration time can be short with use of powerful RAD tools.
* Productivity with fewer people in a short time.
* Reduced development time.
* Increases reusability of components.
* Quick initial reviews occur.
* Encourages customer feedback.
* Integration from very beginning solves a lot of integration issues.

Here I this project we have build different functionalities in different sample application and merge it with the main application every time a functionality is made.This made our application very flexible to changes in either UI design/ requirement on the main app.

**PROJECT PLANNING**

Project planning is an organized and integrated management process, in which we focused on activities required for successful completion of the project. It prevented the obstacles that arise in the project such as changes in projects or project objectives, non-availability of resources, and so on. Project planning also helps in better utilization of resources and optimal usage of the allotted time for the project.

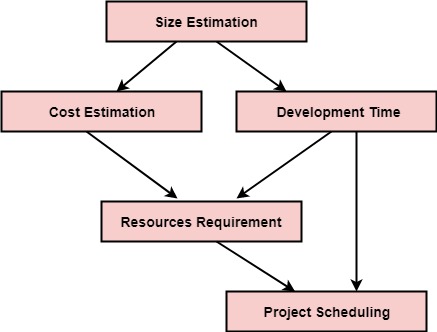
**7.1 SCOPE MANAGEMENT**

In scope management we define the scope of project; this includes all the activities, process need to be done in order to make the software deliverable. Scope management is essential because it creates boundaries of the project by clearly defining what would be done in the project and what would not be done. This made our project to contain limited and quantifiable tasks, which can be easily documented and in turn avoids cost and time overrun

## **7.2 PROJECT ESTIMATION**

For effective management of the project accurate estimation of various ` measures is a must. With correct estimation we could manage and control the project more efficiently and effectively.

1. Software Size Estimation- Software size is estimated either in terms of KLOC (Kilo Line of Code) or by calculating number of function points in software.
2. Effort Estimation- We estimated efforts in terms of personnel requirement and man-hour required to produce the software.
3. Time Estimation- Once size and effort is estimated time estimation become very easy task. Software tasks were divided into smaller tasks, activities or events by Work Breakthrough Structure (WBS).
4. Cost Estimation- We haven’t spend money for this project, but for industrial purposes cost estimation is very essential. It mainly depends on hardware, size of software, quality of software, additional tools etc.

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**7.3 Project Scheduling**

Project Scheduling in a project refers to roadmap of all activities to be done with specified order and within time slot allotted to each activity.We defined various tasks, and project milestones and arrange them keeping various factors in mind. We looked for tasks lie in critical path in the schedule, which were necessary to complete in specific manner (because of task interdependency) and strictly within the time allocated.

## **7.4 Resource management**

All elements used to develop a software product maybe assumed as a resource for the project.The resources were available in limited quantity and stayed in the group as a pool of assets. The shortage of resources hampers the development of project and it can lag behind the schedule. Allocating extra resources increases development cost in the end.

Resource management includes creating proper project team and allocate specific task to each member and also determine the resources required at a certain stage and its availability.

## CONCLUSION

Our App will provide emegency ambulance service for the accident victims.

All Hospitals will use this app. When an accident occurs the request for ambulance service can be made by the victim or by any tracepasser when the victim is in serious condition. The request will be sent to the nearest hospital and then the ambulance will be sent from there to the location of the accident as soon as possible.