International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Accident Detection and Rescue System

Oshin Paul[1], Janvi Khobragade[2], Rushali Parse[3], Vaishanvai Gandhewar[4]

[1,2,3,4] Student, Nagpur Institute of Technology

Abstract:
With increasing demands for automobiles, a drastic increase can be seen in road accidents. As per data given by the WHO (https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries) 1.35 million people die every year due to road accidents. This number is sufficient enough to show the global crises of road safety & creates a need to improve the road safety facilities & rescue operation system.
In most cases when a road accident occurs, the rescue team or the police authorities are not informed in time. Furthermore, the delay caused by the rescue team in reaching the accident site & the heavy traffic congestion in between the accident location and the hospital facilities increases the risk of death for the victim. To overcome this issue, we have come up with this accident detection system which will help the victims get rescued well in time and reduce the risk of death caused by road accidents.

Keyword: GPS, GSM, ANDROID

1. INTRODUCTION

The number of deaths due to traffic accidents is very high. Looking at the number of deaths and injuries due to road traffic accidents shows the global crisis of road safety. This system will help to rescue during accident easily.
There are 5 main modules namely, User, Ambulance, Admin, Hospital and Police. User can register and can login be using credentials. User can view and update details also involves Emergency contacts. User can start and stop tracking, show details of sensors and measures. Sensor calculations, sound meters and GPS.
Assign Ambulance if accident is detected. Here user will get logs and accidents detected history. User will be Notify of the detection. User can kill the Process if its false alarm. Ambulance can login using credentials.
In home Ambulance will get current Alarm Route, Details on Google Map and can get Navigation on Google Map. Ambulance will get Accident notification. Admin can login using credentials. Admin can add, update, delete and view hospital.
Admin can add, update, delete and view ambulance of Hospital and for General. Admin can view users. Admin can view accidents date wise. Hospital can login using credentials.
Detect Current Accident and allotted to the current hospital Details of the accident. Date wise list of accidents cases allotted to me. Hospital can add, update, delete and view ambulance. Hospital will get notification of Accident. Police can login using credentials.
Police will get list of all Today's Accidents and all others date wise. Police will get accident notification.

2. PROBLEM INDENTIFICATION

In emergency condition, each and every second is important in saving human's life. The use of vehicles increases in the proportion of the population. Due the traffic congestion, the accidents are also increasing day by day.

This causes the loss of life due to the delay in the arrival of ambulance to the accident spot or from the accident spot to the hospital. So, it necessary to take the accident victim to the nearby hospital as possible. Whenever, the accident is occurred, it has to be informed to the investigation unit.so, it is also beneficial if the intimation is reached to the enquiry section so that the time for the investigation can be minimized.. Many times, people don't help because they're afraid of getting into legal tangles, or scared that if they accompany the victim to hospital, they might be asked to pay the bill.There are also several cases where people who try to help have been forced to go to court multiple times to give testimony.It become difficult many time to reach out hospital on time.

Drawbacks of the existing system

Maintenance of the system is very difficult.
There is a possibility for getting inaccurate results.
User friendliness is very less.
It consumes more time for processing the task.

3. PROPOSED SOLUTION

Considering the anomalies in the existing system computerization of the whole activity is being suggested after initial analysis.The android application is developed using Android Studio with JAVA as a programming language.Proposed system is accessed by five entities namely, Admin, Ambulance, Hospital, Police and User.

User need to login with their valid login credentials first in order to access the android application.User successful login, User can access all the modules and perform/manage each task accurately.User can perform task such as user can view and update details also involves Emergency contacts. User can start and stop tracking, show details of sensors and measures.

Sensor calculations, sound meters and GPS. Assign Ambulance if accident is detected. Here user will get logs and accidents detected history. User will be Notify of the detection. User can kill the Process if its false alarm.

Ambulance can login using credentials. In home Ambulance will get current Alarm Route, Details on Google Map and can get Navigation on Google Map. Ambulance will get Accident notification.

Admin can login using credentials. Admin can add, update, delete and view hospital. Admin can add, update, delete and view ambulance of Hospital and for General. Admin can view users.

Admin can view accidents date wise. Hospital can login using credentials. Detect Current Accident and allotted to the current hospital Details of the accident. Date wise list of accidents cases allotted to me. Hospital can add, update, delete and view ambulance.

Hospital will get notification of Accident. Police can login using credentials. Police will get list of all Today's Accidents and all others date wise. Police will get accident notification

4. Modules and their Description

The system comprises of 5 major modules with their sub-modules as follows:

1. **User**

- Register: User can register and obtain credentials.
- Login: User can login using credentials.
- Profile: User can view and update details also involves Emergency contacts.
- Home: User can start and stop tracking, show details of sensors and measures.
- Background: Sensor calculations, sound meters and GPS. Assign Ambulance if accident is detected
- History: Here user will get logs and accidents detected history.
- Notifications: User will be Notify of the detection. User can kill the Process if its false alarm.

2. **Ambulance**

- Login: Ambulance can login using credentials.
- Home: Here Ambulance will get current Alarm Route, Details on Google Map and can get Navigation on Google Map.
- Notification: Ambulance will get Accident notification.

3. **Admin**

- Login: Admin can login using credentials.
- Manage Hospital: Admin can add, update, delete and view hospital.
- Manage Ambulance: Admin can add, update, delete and view ambulance of Hospital and for General.
- View Users: Admin can view users.
- View Accidents: Admin can view accidents date wise

4. **Hospital**

- Login: Hospital can login using credentials.
- Home: Detect Current Accident and allotted to the current hospital Details of the accident.
- List: date wise list of accidents cases allotted to me
- Manage Ambulance: Hospital can add, update, delete and view ambulance.
- Notification: Hospital will get notification of Accident.

5. **Police**

- Login: Police can login using credentials.
- Home: Police will get list of all Today's Accidents and all others date wise.
- Notification: Police will get accident notification.

6. PROJECT OUTCOME AND UTILITY

- Every concerned body involved in an accident is included in this system to keep them notified and get the required information on their phone through the application thus speeding the process of rescuing the patient.
- Accident is notified automatically by the application. Also, user is given the option to stop the alert before being sent by app in case of a false alarm in notification bar.
- All the major systems like hospital, ambulance, users and accident reports can be monitored by Admin.

CONCLUSIONS

This was our project on System Design about "**Accident Detection and Rescue System**" developed in Android as well as web application based on Java and Android programming language. The Development of this system takes a lot of efforts from us. We think this system gave a lot of satisfaction to all of us. Though every task is never said to be perfect in this development field even more improvement may be possible in this application. We learned so many things and gained a lot of knowledge about development field. We hope this will prove fruitful to us.

ACKNOWLEDGMENT

We are pleased to present **"Accident Detection and"** project and take this opportunity to express our profound gratitude to all those people who helped us in completion of this project.

We thank our college for providing us with excellent facilities that helped us to complete and present this project. We would also like to thank the staff members and lab assistants for permitting us to use computers in the lab as and when required.

We express our deepest gratitude towards our project guide for his/her valuable and timely advice during the various phases in our project. We would also like to thank him/her for providing us with all proper facilities and support as the project co-coordinator. We would like to thank him/her for support, patience and faith in our capabilities and for giving us flexibility in terms of working and reporting schedules.

We would like to thank all our friends for their smiles and friendship making the college life enjoyable and memorable and family members who always stood beside us and provided the utmost important moral support. Finally, we would like to thank everyone who has helped us directly or indirectly in our project.

REFERENCES

1. Nicky Kattukkaran; Arun George; T.P. Mithun Haridas, " **Intelligent accident detection and alert system for emergency medical assistance,**" 2017 International Conference on Computer Communication and Informatics (ICCCI), Coimbatore, India, doi: 10.1109/ICCCI.2017.8117791.
2. Bruno Fernandes ,Vitor Gomes ,Joaquim Ferreira ,Arnaldo Oliveira, **"Mobile Application For Automatic Accident Detection and Multimodal Alert ,"** 2015 IEEE 81st Vehicular Technology Conference (VTC Spring)5, Glasgow, UK, doi: 10.1109/VTCSpring.2015.7145935
3. Arsalan Khan, Farzana Bibi ; Accident Detection and Smart Rescue System using Android Smartphone with Real-Time Location Tracking
4. Bharath Kumar M; Abdhul Basit; Road Accident Detection Using Machine Learning
5. Bilal Khalid Dar; Munam Ali ShahComputing based Automated Accident Detection and Emergency Response System using Android Smartphone Fog
6. S.Mohana Gowri; P. Anitha; Internet Of Things Base Accident Detection System
7. Md. Syedul Amin; Jubayer Jalil; Accident detection and reporting system using GPS, GPRS and GSM technology