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# Android Accident Detection & Alert System

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## **1) Background/ Problem Statement**

Along with increasing demands for automobiles, a drastic increase can be seen in road accidents. As per data given by the WHO . 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. The system includes a sensor, sound meter, GPS and GSM module. The sensors will detect the accident & sound meters will trigger an alarm. The GPS will track the location coordinates and the GSM will send an alert notification to the nearby hospital & police authorities. Thus, this system will send an instant alert to the nearby rescue team & hospital facility to notify them of the accident occurred for them to take immediate actions.

## **2) Working of the Project**

This Application aids in having a better coordination and keeps all the concerned bodies and authorities informed and alerts them quickly which also saves time in rescuing an accident patient. When a person meets an accident, he is usually not in a condition to interact with an application on his phone and ask for help. In such situation Accident is detected automatically in user app based on sound

reading and sensor reading, user app continuously senses for such accidents. App then quickly assigns and sends notification to the nearby Ambulance, nearby hospital and also the police informing in case of an accident detected. Ambulance then keep updating of the status of patient whether dropped to the hospital. Hospital can also update status if admitted to the hospital from their app. This helps in keeping the assigned hospital prepared and informed. Also, the User details are shared with hospital and police which helps hospital to see the medical records of the patient and police gets to see required details of the user in an accident.

### **3) Advantages**

- 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.

### **4) System Description**

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

#### **1. User:**

- **Register:** User can register using personal details.

- **Login:** User can login in his personal account email id and password.
- **Profile:** User can edit their profile as well as add Emergency Contacts.
- **Home:** User will be able to see the Sensor readings i.e., Sound Meter and Accelerometer readings. User can also stop/start the detection system.
- **Background:** The system in the background will be continuously monitoring the Sound decibel value and accelerometer for any Accident type impacts. If it finds the App Notifies the User to verify if it's a false alarm, if no action is done in 5 secs the Ambulance is assigned & notifies Hospital, Ambulance and Police about the accident with the location & User details.
- **History:** History of Accident detections & details.
- **Notifications:** User will be notified if system detects an Accident.

## 2. Admin:

- **Login:** Admin can login his account using id and password.
- **Manage Hospital:** Admin is the only person who can manage Hospital data and provide credentials to them.
- **Manage Ambulance:** Admin can manage Ambulance data and provide credentials to them. Ambulances are also mentioned if they work independently or are owned by Hospitals.
- **View Users:** View all the Users registered in this system.
- **View Accidents:** View all the Accidents and details about it, can be filtered date wise.

### 3. Ambulance:

- **Login:** Ambulance driver can login his account using id and password.
- **Home:** The driver can see the current accident location along with the User details, the driver can directly navigate through Google Maps. The Driver can update the status whether he has picked/dropped the User.
- **Notifications:** The driver will get a notification if it is assigned a Pickup.

### 4. Hospital:

- **Login:** Hospital User can login his account using id and password.
- **Home:** The User can see the current accident location assigned to his Hospital if any. Hospital can also update the status whether the user has been admitted in the Hospital.
- **View Accidents:** List of all the Accidents and details about it assigned to his Hospital.
- **Manage Ambulance:** Hospital can also manage their owned Ambulances.
- **Notifications:** The Hospital will get a notification if it is assigned a Pickup.

### 5. Police:

- **Login:** Police can login his account using id and password.
- **Home:** Police is able to see to Today's accident specifically or filter date wise to see previous ones.

**Notifications:** Police will get a notification if it is assigned a Pickup.

### **5) Limitation/Disadvantages**

- There can be case of false alarm if user fails to stop the false alarm in time which is not handled by this system.
- Internet is required for sending accident detection report from user app. If there is no active internet then accident report sending fails.

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