

Accident Alert & Trench (Pothole) Detection System

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Abstract:-India witnessed one of the highest road accidents in the world, as stated by Union road transport and highways ministry in 2016. Road accident often takes place due to bad road & weather condition, reckless driving etc. Accident occurring are often not noticed or reported late that leads to loss of victim's life or serious injuries caused permanently. One of the problems associated with bad road condition is the pothole on road.

Accident Alert Pothole Detection System (AAPDS) is a system designed for reporting of accident and potholes on roads. The System consists of various sensors that are used for sensing accident's and pothole's on roads. A smartphone is used to provide exact location of accidents using GSM & GPS module present in smartphone after the response from the sensor is taken. A map is provided to navigate the location of accident. Similarly a sensor is used for sensing pothole's. This data is then processed by the processing module & send to the smartphone, where the map is used to display the location of pothole's. Further the collection of such data can be send to concern authorities where this kind of data is stored and managed for managing the road condition and providing prior warning of accident prone area.

Keyword:- AAPDS, GPS, GSM, Accident, Pothole.

I. INTRODUCTION

The number of accident occurrence has increased in the past few years. The growth in economy and population lead more automobile is running on the roads. Bad road condition and weather condition leads to cause of accident. As accident occurs now it is important that the victim must be treated as fast as possible. For the victim to be treated quickly as possible now it is accurate information must be provided of the location. The accurate information provided can save life of victim. System will use the smartphone as medium for alerting the authorities and providing required location.

The problem related to accident is potholes on road. This issue are solved in system while using data provided by the sensor. The System uses the data taken from the sensor and provides

the data to the processing unit. The location of the potholes is displayed using a map. The map display the data in the form of pin. The area on the road where the potholes are present are marked on the road.

II. WHAT IS ACCIDENT ALERT AND POTHOLE DETECTION SYSTEM

When an accident occurs, sometimes often accidents are unnoticed in order to stop this from happening we use a system such that when an accident occurs it sends the alert to respective authority. Through this we will be able to notice accident that occurred and will not go unnoticed. As we know there is bad road condition and sometimes leads to accident. Whenever there is a trench on a road the vehicle enters it may cause some problem. Thus the system uses a sensor to provide exact position of pothole's.

III. NEED OF ACCIDENT ALERT AND POTHOLE DETECTION SYSTEM

Accident often occurring can result in loss of victim's life. Thus the need arises for a system for detecting and reporting of accident so that help is provided as soon as possible. Due to bad weather condition and low maintenance the condition of roads in India are poor. Due to such condition there are formations of potholes on the road. The System is designed to detect the pothole on roads and provide their location, with the help of a map inbuilt in the map

IV. SYSTEM ARCHITECTURE

All required modules for system architecture for accident alert and pothole detection are explained below.

System Architecture of Accident Alert and Pothole Detection System

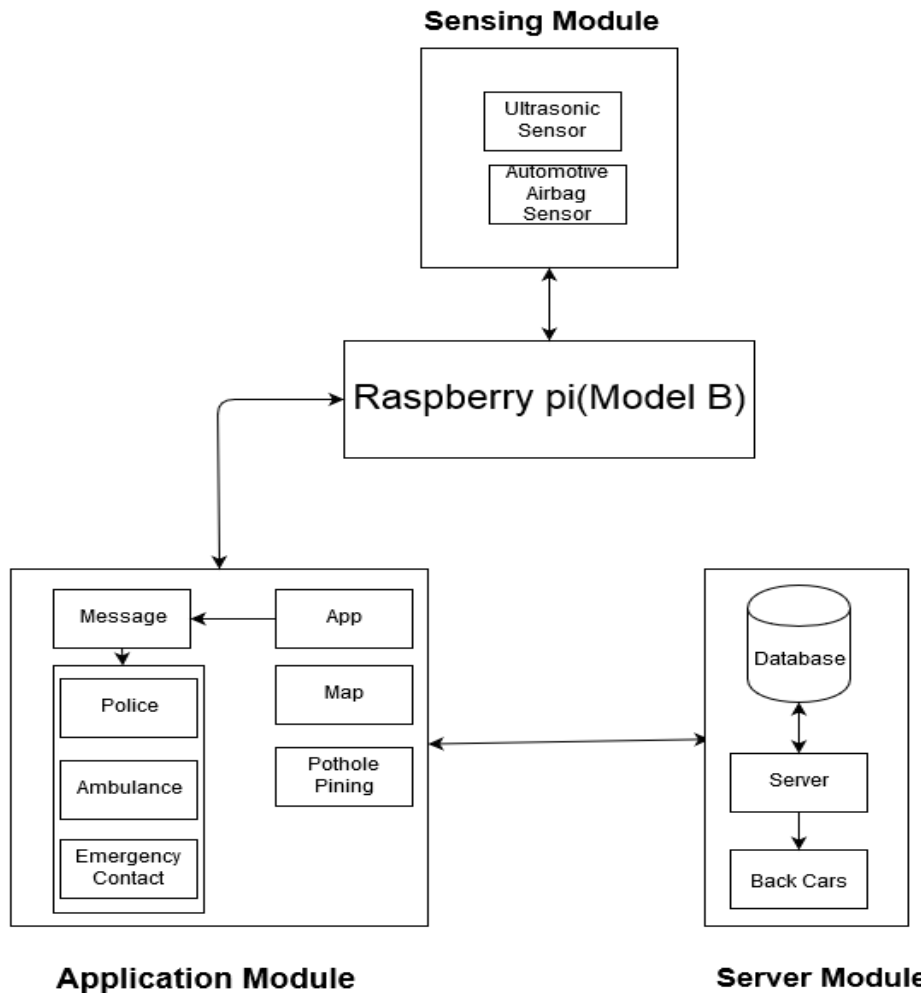


Fig. 1: System Architecture for Accident Alert and Pothole Detection

A. Sensing Module

The Sensing module is the responsible for Detection of accident and pothole’s on road. This module continuously takes data from the environment and provides data to the processing unit. The Sensor responsible for sensing the pothole continuously captures the data in it’s vicinity and provide that data to the processing data. It interacted with only the processing module.

B. Processing Module

The processing module is processing the continuous data received from the sensors. The processing module is a raspberry pi. This data is then send to the app where the data is then Send over to the server and then the data is distributed.

C. Application Module

This application will be android based and it will provide a simple interface to user and provide a map which displays the

road condition and pothole's on that road on which the car is down .The interface of app will be kept simple so user can use it without any age constraint.

D. Server

This module is about fetching the information form the different user from their apps. Here the data that is been fetched is in the JSON format and it is then stored in the database that is of MySql format. From this, the data is provided as to the user based on the user location or it can be preload's accordingly.

V. FUTURE DEVELOPMENT

The system can be able to sense the potholes proactively using real time data. The Problem related to the severity of the potholes can be solved. The accident alert can not be used in a area were the network is not present

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