Accident Alert and Vehicle Tracking Mechanism

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Abstract: In India due to heavy traffic on roads and highways Vehicle accidents are one of the main primary causes of death. The instance between a mishap incidence happens and the emergency medical persons are dispatched to the incident spot is the crucial aspect in the endurance rates after a mishap. By eliminating that time between an accident incident and the earliest responders are dispatched to the scene decreases death rates so that we can accumulate lives. Single approach to wash out that delay between accident occurrence and first responder dispatch is to use an accident Alert and Vehicle tracking system, which intellect when a traffic accident is likely to occur and instantly notify emergency occurred. In this paper, system describes the main application of early accident detection. In this method, primarily the GPS takes input data from the satellite and stores the co-ordinate values in microcontrollers' buffer. If we have to track the vehicle, we need to notify the GSM device, by which it gets activated. It also gets activated by sensing accident on the shock sensor allied to Raspberry Pi. Simultaneously deactivates GPS with the help of transition .Once GSM gets activated it takes the last tracked coordinate positions values from the buffer and sends a notification via message to a central emergency mail server which is predefined in the program. This system uses the following things i.e. Raspberry Pi, shaking sensors, GPS and GSM modules to identify traffic accidents. This paper also gives review on the accident sensing techniques and some outlooks in the same field. Now-a-days lots of accidents occur on roads and highways due to enhance in traffic and also due to rash driving of the vehicle drivers. And in many conditions the family members or the ambulance and police and traffic control authority is not clued-up in time. This effect in delaying the help reached to the person suffered due to accident. Road accidents comprise the major part of the accident .The theme of the project is to find the vehicle where it is and locate the vehicle by means of sending a notification using a thing placed inside of vehicle system Many of the times we may not be able to find accident location because we don't know where accident will take place. Our research Accident Notification Alert and Vehicle Tracking System using GPS and GSM is planned to pass up such situations. The accident happens very quick moment the notification goes to the nearby hospital.

Keywords: Accident, GPS Module, Raspberry Pi, Global Positioning System (GPS), Global System for Mobile Communications (GSM), Microcontroller 8051, Tracking Location.

I. INTRODUCTION

In our country, the demands and supply of vehicles have increased to a larger extent in the last few years. Due to which traffic is increasing and accident ratio is also going high. Lack of better emergency facilities available. News about various incidents happening around comes out every day. An automatic alert system for such accidents and incidents is introduced in this paper. The planned method which can detect accidents or the incidents is get noticed or identified in little less time and sends the details of that particular incident to the nearest hospitals with the exact location with the help of the coordinates the time and the angle in which the accident of vehicle had occurred [2]. GPS i.e. Global Positioning System is a network of orbiting satellites that send precise details of their position in space back to earth. The signals are obtained by GPS receivers, such as navigation devices and are used to calculate the exact position, speed and time at the vehicles location which will help to get the exact accident location and details using the same and GSM modules. The Global System for Mobile Communications to communicate or to notify the traffic control, the nearest hospital or emergency service and the family of the victim. This Whole process will be carried out in a quick span of time and the emergency centres will look after the rest process.

II. LITERATURE SURVEY

There are certain systems which are present in the current scenario which provides a first step towards accident reporting system which we a have studied. The increasing technology and infrastructure has made our lives simpler [8]. The start of technology has also augmented the traffic hazards and the road accidents take place regularly which causes enormous loss of life property and wealth just because of the poor emergency services. Many of the authors explained the vehicle tracking in the embedded system [3, 9]. This paper will provide a finest resolution to the problem. This paper presents vehicle accident

detection and alert system. The GPS tracking and GSM alert based model is designed. The proposed Vehicle accident recognition method can track geographical information and the coordinates automatically and sends an alert SMS regarding accident to the nearest hospitals and to the families of the victims. This alert is sent to the central emergency mail server so that it will notify the ambulances nearest to the accident location in short period of time which will help to save the valuable lives every time. A control is also provided to conclude the sending of notification where there will be no victims which will save the precious time of ambulances. [1] The alert notification is sent directly via GSM Module and the exact location is tracked by the GPS system and forwarded to the system. The accidents can be detected accurately with the help of vibration sensors. This proposed idea can be help mainly to the extremely weak areas, weak in emergency facilities to the road accidents in most easy way [6].

A Recent study shows that during 2008, Road Traffic accidents ranked fourth among the leading causes of death in the world. Nearly 1.3 million people die every year on the world's roads and 20 to 50 million people suffer non-fatal injuries, with many sustaining a disability as a result of their injury [2]. These days most of the incidents occurred on the highways due to huge traffic, rash and bad driving of drivers. In many cases, the families of the victims the traffic authorities and the ambulances are not informed in time. This results in a delay in the help to reach them. If no action is taken to predict says 2 million road [4] accidents will takes place annually. The focus of this approach is mainly works in real time and designed to solve the same issue through GPS tracking system and alert about the happening things around. Road accidents comprise the maximum part of the accidents [1, 5].

The result shows that higher compassion and accuracy is indeed achieved by means of this project [10]. It also proposes a new measurement in order to permit early reply and rescue of accident victims; saving their lives and properties [2]. The system uses the potential of GPS module and GSM module to provide an explanation which can be used to specifically intellect the accident place and to send the emergency alert notification to the nearby hospital's ICU and to the victim's family Sensors and the switches/other mechanism used in system is circulated throughout the car hence provides more elasticity while mounting into the vehicle. In extremely populated Countries like India, everyday people lose their lives due to accidents and weak emergency facilities [1]. These lives could have been saved if medical amenities are provided at the same instance at the same time. This paper implies method which is a result to this drawback. Accelerometer sensor can be used in car safety system to sense vibrations in vehicle and GPS Module to give exact location of vehicle, so hazardous driving can be detected Automatic accident recognition and reporting system is planned in this paper. When accident happens, it is sensed by Accelerometer. Short message including location of

accident obtained using GPS Module, is sent via GSM network. It provides more than 70% safety for four wheelers [3].

Parameters / Systems	GPS	GSM	NOTIFICATION	TRAFFIC CONTROL	HOSPITAL ALERT	FAMILY ALERT	SOS SERVICE	SMS	WEB FEATURES	APP FEATURES	STORY CAPTURING	PRE DIAGNOSIS	POLICE REPORTING	LOCATION TRACKING	GESTURE SENSOR	PANIC BUTTON	RTO INTIMATION	SOCIAL PUBLISHING	ALARM	CALL	MAP	VEHICLE TRACKING
Accident Alert and Vehicle Tracking System.	Y	Y	Y	X	X	X	X	Y	X	X	X	X	X	X	X	X	X	X	X	Y	Y	Y
Real Time Vehicle Accident Detection and Tracking Using GPS and GSM.	Y	Y	Y	Y	X	X	X	X	Y	X	X	X	X	Y	X	Y	X	X	X	Y	Y	Y
Automatic traffic accident detection and alarm system.	Y	Y	Y	Y	X	X	X	Y	Y	Y	X	X	X	Y	X	X	X	X	Y	Y	Y	Y
Mobile phone location determination and its impact on intelligent transportation systems.	Y	Y	Y	Y	X	Y	X	Y	Y	Y	X	X	X	Y	X	X	X	X	Y	Y	Y	Y
Proposed System	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

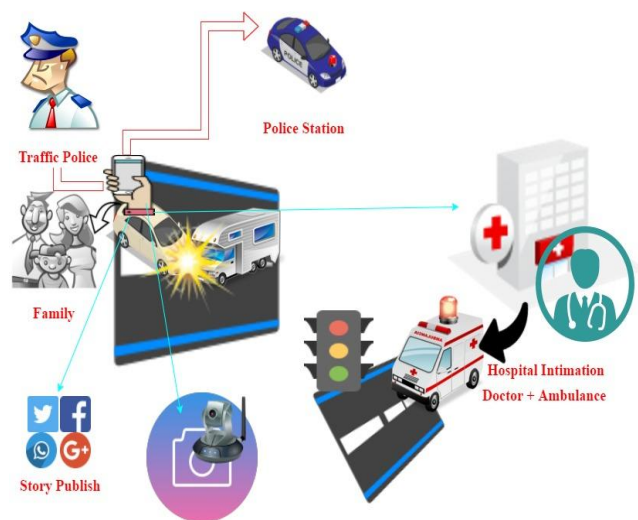Fig 1. Taxonomy Chart

III.PROPOSED SYSTEM

Fig 2. Proposed System

The proposed system having ability to perform numerous task or operation i.e as foreground or as background service which maintain the highest level of emergency against any accident. This system provides various mechanism such as Profile Mechanism, Location Tracking Mechanism, Alert Generation Mechanism, Contact Family Mechanism, Maintain Local Database Mechanism, Phone Calling Mechanism, Messaging Mechanism,

Alert/Incident Publish Mechanism, Emergency Button Mechanism, andVehicle Tracking Mechanism on Map Mechanism. In the proposed system the user profile is maintained with different attributes such as Name, Age, Photo, Email-Id and Phone Number. By this user can view their location on map via geocoding and reverse geocoding to see others friends location. User is able to share the location. This system enables calling and sending message option for user. It also maintains both database Local. It create screaming sound in emergency/ accident or violence and also send automated normal messages or SOS messages to the police, social media, hospital, traffic control office and family members which contains location and time.

IV.CONCLUSION

The aim of the paper "Accident Alert and Vehicle Tracking Mechanism"is to give a general idea about vehicle tracking and vehicle accident detection system using the GPS and GSM Module has been successfully explained. The incident get detected and the detection system can track coordinates of the location of incident happening i.e. geographical information automatically using GPS System and sends an alert SMS notification about accident. Though it will increase little cost of vehicle but safety is the major requirement of the current time due to heavy increase in traffic and is highly beneficial to the automotive trade. Tentative work has been carried out cautiously. The result shows that higher compassion and correctness and will decrease the rate of accidents happening all around the country.

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