VEHICLE CRASH ALERT SYSTEMS
Accident alert system

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Abstract—Accidents cause a lot of damage and loss of life and property. Current statistics show accidents are increasing day by day .Most of the times, there is no one around the victim to help him in and offer immediate need. When an auto crash occurs suddenly, the reaction of the emergency services now becomes a race between life and death. Today, wireless innovation has tilted the odds in favor of success like never before. Before, the people in the emergency services had little more to rely upon than raw courage. Now the world of wireless has inspired an entirely a new way of managing and minimizing the death rate due to auto crash. The scene of a fatal accident is always a theater where man and technology face the ultimate test. Whether the emergency is fire, earthquake or flood, relief or needed medical attention in this case, the stakes are always high. Indeed, wireless communications has become extremely important in emergency response. Obviously the most important tool in any situation is people. But better information with the aid of machine-to-machine (M2M) network means better decision making and that means technology is helping to save property and lives.

Today's standard for reporting on car accidents is an extremely slow process. Presently, the accident needs to be physically reported and announced via a radio broadcast or a portable GPS unit before a driver is alerted. This approach also requires that the driver is listening to the radio or is using the GPS.

This project is an intelligent Accident alert system which not only notifies accidental alert but also provides the exact location where the accident has taken place.

Many lives could have been saved if the required attention was given at the time of need. With the help of this system, the required attention can be given to the victim as the intelligent pressure sensors fitted into the systems alerts the nearby police stations and hospitals.

Keywords- Accident Detection, Accidents alert, GPS, Hospitals, Police Station, Accelerometer.

I.   INTRODUCTION

New generation of cars are improved in such a way that the number of accidents decreases. Innovative ideas has implemented and emerged in order to reduce the risk of accident.

During the recent past years, some alarm system and intelligent controlled apparatus have been designed and developed in order to increase the safety of automobiles.

Security in travel is primary concern for everyone. This Project describes a design of effective alarm system that can monitor the emergency during an accident. An emergency is a deviation from planned or expected behavior or a course of event that endangers or adversely affects people, property, or the environment. This paper reports a complete research work in accident (automobile) emergency alert situation. The authors were able to program a GPS / GSM module incorporating a crash detector to report automatically via the GSM communication platform (using SMS messaging) to the nearest agencies such as police posts, hospitals, fire services etc, giving the exact position of

the point where the crash had occurred. This will allow early response and rescue of accident victims; saving lives and properties.

OUR SYSTEM
Our system can be used in any kind of vehicle. When the accident takes place, the alert is automatically sent to the nearby police stations and hospitals for the immediate help but in the existing system the victim has to manually press the sensor and call for help which is not practical incase he is seriously injured. The existing system doesn't generate any siren to get assistance from the passersby.

The message notifications to be sent to the emergency station is the important add-on to the existing system and projects and a novel idea ,which will be more help in today's world, where Man has probably lost his virtues and is self-centered.

II.   OBJECTIVE OF OUR SYSTEM

The main objective of the system is to provide help and need for the vehicle user and also detects the accident if occurred and informs the respective authority through wireless technologies such as GSM and GPS. Vehicle Crash alert system is used to recognize the location of the accident and easily to reach the location.

Every second is valuable for the ambulance. The sensors are immediately triggered as soon as the crash takes place. There is no loss of life due to the delay in the arrival of the ambulance. The purpose of the project is to find the vehicle where it is and locate the vehicle by means of sending a message using a system which is placed inside of vehicle system Most of the times we may not be able to find accident location because we don't know where accident will happen. In order to give treatment for injured people, first we need to know where the accident happened through location tracking and sending a message to the nearest hospital and police stations.

III.   EXISTING SYSTEM

There are various proposed projects and a live system in US only .The systems detects a crash , built in accelerometer and places a message to let you know it's about to call for help. You can cancel the alert if needed otherwise the app uploads crash details to automatic emergency call center. An agent calls your phone to confirm that you need assistance then request help from local authorities. They can stay online with you till the help arrives. Agents also can call the loved ones to let them know help is on the way. In the existing system, the victim has to manually press the sensor.

- This system is provided only in few states in the US.
- The live system is just an app; hence if the victim isn't carrying his mobile, this is of no help.
- If phone is damaged, help cannot be reached.
- The victim is required to confirm the assistance needed which is not practical in case he is seriously injured.
- This exists only in the higher profile cars.
- The other proposed projects doesn't include sending alert to the nearest emergency stations like police and hospitals.

IV.   DISADVANTAGES

The live system 'Crash Alert' is US-only and can't work if any of the following occur at the time of the crash:
- Automatic or phone is disconnected or damaged
- Automatic and phone not connected via Bluetooth
- No GPS signal at the time of the crash
- Insufficient cellular signal to upload crash details.

The existing alert system projects include notification only to dear ones and the owner of the vehicle, but not to the emergency stations.

V.   ADVANTAGES OF OUR SYSTEM

- This system is an immediate aid system.
- Monitors all hazards and threats.
- Alert messages are sent to the nearby hospitals and police stations.
- It is an affordable system.
- Can be used in any kind of vehicle.
- The alert message regarding the accident is automatically sent,
- This system can be used for a social cause.
- It does not need any operation manually.

VI.   HARDWARE REQUIREMENTS

- Pressure sensors
- Embedded microcontroller
- Portable GPS
- Control database servers
- Mobile phone handsets
- GSM modem
- Accelerometer

VII.   SOFTWARE REQUIREMENTS

- C Program
- Embedded Program
- Google Maps
- Javascript

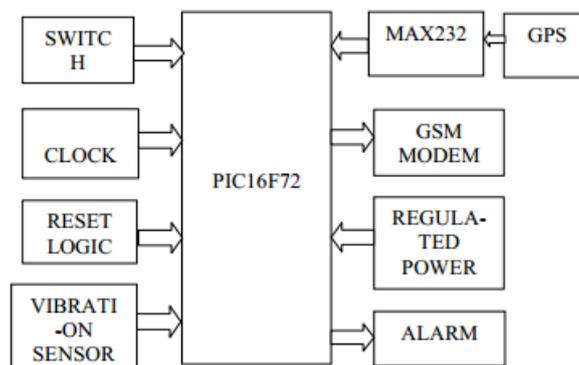## VIII.   DESIGN DIAGRAM

Fig3. Block diagram of Vehicle Accident Automatic Detection and Alarm Device

IX.   SEQUENCE OF ACTIONS

1.   The system is initialized.
2.   Accelerometer detects violent vibration in the vehicle.
3.   Confirmation of accident

4.   Siren started automatically.

5.   A manual switch is present which can be used by the victims to stop the further procedures, incase no assistance required.

6.   In case the switch is not used, it implies that assistance is further required and notifications are sent to the nearest emergency centers.

7.   The Emergency centers include the nearest Hospital and Police station.

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