"SOLAR POWER VEHICLE AUTOMATIC ACCIDENT INFORMATION USING IOT BASED"

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ABSTRACT: The use of transportation is very important in our daily life to detect a vehicle accident in this project and Accident location information for that vehicle or the service will be available as soon as possible. Whats App Android Phone Number is alerted by the web service to the nearest hospital and police station. The exact detection of a vehicle accident is carried out using internet of think (IoT) to send that message for this; SMS is sent using internet and Wi-Fi. This sensor is used to detect a vehicle accident Vibration sensor and Accelerometer sensor.

Key words: Accidents detect, GPS, exact location, IoT, sensors, tracking.

1. INTRODUCTION

Static shows that the leading cause of death by injury is road traffic accidents. A survey report by WHO highlights that every year more than 97K peoples in India. The figure accounts for 64.4% of the total deaths in India, according to road transport & highway ministry report on Road Accident in India, 2018.

There are many reasons for accident. Due to which the number of accidents has increased significantly. The reasons are as follows, Lack of training institute, increased use of mobiles while driving, driving while intoxicated, road damage, overloading and poor traffic management.

In case of an accident, the ambulance dies due to late arrival at the accident site. Although in most cases the injury is not serious and we can save the lives of the affected people. Yet with the late arrival of rescue teams, the rate of injuries was overall. In this paper we brieflyreview the selected road accident detection techniques and propose solutions. In this technique, a system is use that can automatically detect on accident inappreciably less amount of time and sends the basic information about the accident to the emergency center. These techniques use Smartphone, GSM and GPS. The accident detection system detects the location of the accident in a short time, the time and angle during which a vehicle accident.

had occurred. This alert message is send to the rescue team in short time, which will help in saving the valuable lives. A switch is also provided in order to terminate the sending of the message in rate case where there is no casualty, this can save the precious time of the medical rescue team. When the accident occurs the alert message is shipped automatically to the rescue team and to the police station. The message is send through GSM module and the location of the accident is detected with the help of GPS module. Accident detection is done in a short time by using MEMS sensor & vibration sensor. The angle of the rolls over of the car can also be known by the message through MEMS sensor. This application provides the optimum solution to poor emergency facilities provide to the road accidents in the most feasible way.

OBJECTIVE

The project objective is if there is a vehicle accident on the road, an alert message with the location coordinates is sent to the control center. Also a message will be sent to the ambulance from the control centre**.** Also signal is transmitted to all or any the signals in between ambulance and vehicle location to supply RF communication between ambulance and traffic section. Using the vehicle accident vibration sensor and in the control section taken by the microcontroller, the nearest ambulance receives from the PC and the controller sends a message to the ambulance. The signal to traffic light section is transmitted through RF communication. Also if any fire occurs, its detected using fire sensor and an alarm message is directly sent to the hearth station.

2. LIERATURE REVIEW

Sowmya shree BV, Rmesh TS, "Smart Detecting Accident by IOT and Smart Rescue System"vol.7,Issue 4 April 2018. Technology is rapidly increasing but even after an accident, some people do not serve the victims. This is because medical facilities are not available in many places and it can lead to loss of life. The project informs about an accident that is occurred to the vehicle to rescue team, as

well as sending an alert message to the nearest ambulance use the android system to detect the accident.

Now modern vehicles have come up with new technology so injured people can get help Shows an important point to improve the overall rescue process, to prevent accidents, to help emergency services better estimate resources. This paper purpose android system which is able to automatically detect road accident . Our system considers the most relevant variable that can characterize the severity of the accident

3. METHODOLOGY

3.1 BLOCK DIAGRAM

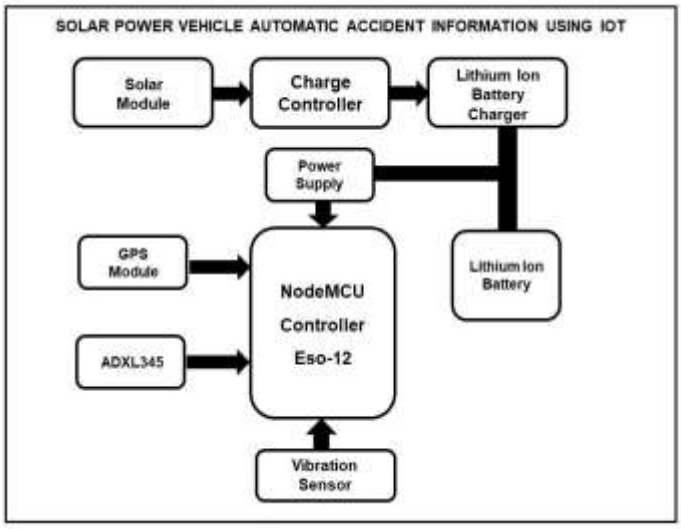

Fig.3.1:- Block Diagram Representation

It shows the system is initialized power ON. When the vibration sensor is detected, it is known that the vehicle has had an accident. Vehicle vibration / acceleration were found to confirm the cause of the accident. If the driver need immediate attention of other driver can gained it through pressing emergency switch.

4. EXPERIMENTAL SET-UP

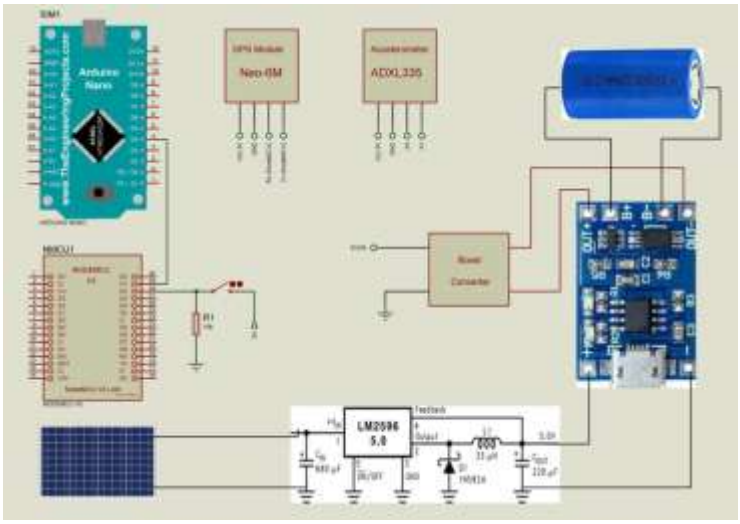

Fig.4.1 Circuit diagram of solar power vehicle automatic accident information using IOT based.

4.1 CIRCUIT DIAGRAM EXPLANATION

In this project, in case of an accident on the road, an alert message is sent to the control center. Also, an alert message is sent to the nearest ambulance through the control center. So that an ambulance is immediately available at accident place. Spread across all signals to provide RF communication between ambulance and traffic section. Vibration sensor is used in case of vehicle accident also obtained through microcontroller using control center. The ambulance was then received from the PC and sent a message to the control center through the ambulance. The signal to traffic signal section is transmitted by Radio Frequency communication. Suppose fire is detected anywhere using fire sensor and an alarm message is sent directly to the fire station.

Arduino UNO AT328 is predicated on microcontroller board. Its 14 digital I/P /O/P pins and 6 analog I/P pin. Arduino UNO contains USB connect power jack, an ICSP header& Reset button. AC to DC adpter and battery are used to start the system. USB cable is connected to the computer. The Global System for Mobile Communications (GSM) is a second-generation (2G) digital cellular network used by mobile devices such as mobile phones and tablets, meaning that mobile phones instantly find and connect to nearby cells. Vibration Shock sensors is used to detect accident. After the effect, the output of the sensor will be + 5V and will be connected to the processor's INT (pin 12). Sensors have been installed on four sides of the car to detect accidents.

ALGORITHM:

Step 1: Start
Step 2: Power on all the modules
Step 3: await for the shock sensor to detect accident
Step 4: Once accident detected activate the buzzer immediately.
Step 5: Check if the Delete Message button is pressed in 15 seconds
Step 6: If button is pressed turn off the buzzer and go to step 3.
Step 7: If button is not pressed get the present location from the GPS modem.
Step 8: Check if the GSM modem is registered on the network
Step 9: Send the SMS with the location

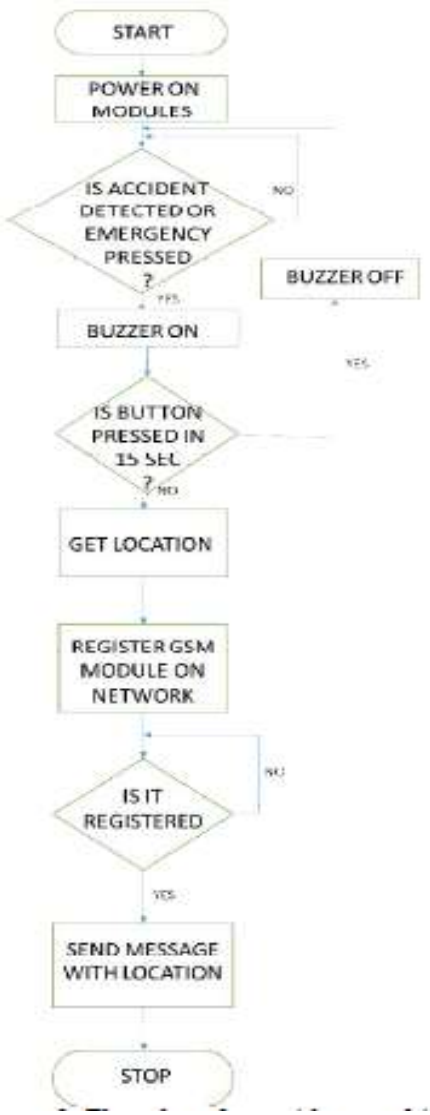

Fig.4.1.1 Flowchart for accident tracking

Indicates that the energy is on while the system is running. When the system is detected to be abnormal, its confirm that the accident has occurred. The vibration/ acceleration of the vehicle are detected to verify the cause of accident. When accidents occurs the ADXL sensor detects the accident by alerting the microcontroller. After pressing the emergency key, an alert message is sent to the microcontroller. The buzzer is ON immediately after receiving the information of the accident. Cancel message button is scanned first; drivers can use this button if it is a minor accident. Suppose in case of major accident the driver can press this button. If a major accident occurs, the switch is OFF. When the accident location is found by GPS and the message is automatically sent to the rescue team. The message will send as SMS and location can be traced by using the application.

4.2 HARDWARE IMPLEMENTATION COMPONENTS

Sr.no.	Components Name	Specification	Comment
1	Arduino uno	Atmega328P	Used to write and upload computer code to the physical board.
2	NodeMCU	ESP-12	Node MCU is an open-source firmware and development kit that helps you to prototype or build IoT products
3	Accelerometer	ADXL335	With the help of gravity accelerometer ADXL335 can detect the accident by just sensing its position depends due to X and Y axis. Different sensor used to measure every moment of vehicle like motion sensor, shok and vibration sensor
4	Vibration Shock Sensor	801S	The sensor used to detect accident is shock sensor
5	GPS module	UBlox Neo-6M	GPS module were used to track location of vehicle named as UBlox Neo-6M its high range well perform receiver which content 25 x 25 x 4mm ceramic antenna thats gives efficient range and searching capacity with the power of only one indicator we

			could analayis location of module
6	Lithium Ion Battery	2200mAh/ 3.7V	The battery takes in and stores energy during process
7	Li-Ion Battery Charger	TP4056/1A	It supports a constant current – constant voltage charging mec hanism for s single cell Li-Ion Battery
8	Boost Converter	3.7V to 5V	A boost converter (step-up converter) is a DC-to-DC power converter that increases the voltage (supply current) from its input.
9	Solar Module	6.5W/10V	The function of solar panels is to gather that energy and convert it to electricity to bring power to our project
10	Buck Converter 5V	Circuit	Buck converter (step-down converter) is a DC-to-DC power converter that lowers voltage (while running) from its input (supply) to output (load) 11 pcb Large 180x150 mm pcb, used mechanically on non-conductive substrate Support electronic components and electrically connect using conductive paths, tracks or signal traces made of laminated copper sheet
11	PCB Large	180x150m m	An electrical conductor made of copper sheet laminated on a non-conductive substrate, is used to mechanically support and electronically connect electronic components using traces of tracks or signals.

Table no.1: Components Rating & Specification

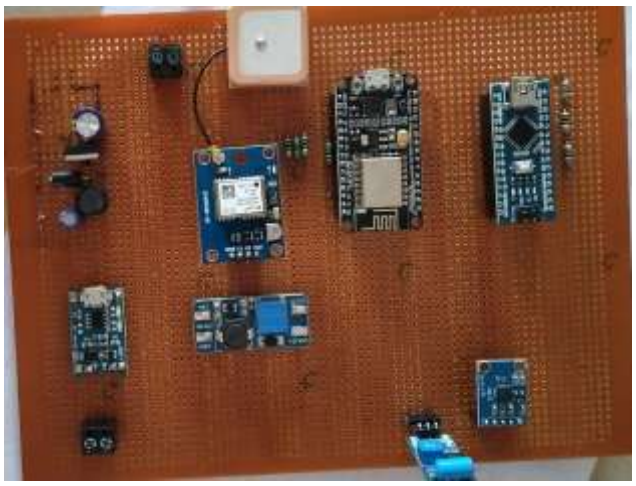

Fig.4.2. Working model

5. CONCLUSION

In this project, in case of an accident an alert message is immediately sent to ambulance available near the control centers. Therefore, through this project, emergency calls and messages can speed up the provision of medical services to the injured on the road. Accidents can be avoided in any place. Using android mobile or GPS system can help injured people.

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