

# Accident Prevention System Using Wireless Charging Unit

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**Abstract:** Purpose of this project deals is to develop of an accident prevention system that uses the Arduino Uno as a main Function of design. The principle to prevent the accident in advance and if accident occurs then there will be a prevention system to notify emergency services before time. Its deals with safety parameters. When an accident occurs, the related details are sent to. The vehicle location is obtained by making use of the global positioning system. The system promises a reliable and quick delivery of information relating to the accident in real time and updated to cloud which are accessed by IOT. Thus, by making use of the ubiquitous connectivity which is a salient feature for the vehicles, accident prevention system is built along with wireless charging unit is setup for even charging vehicles.

**Keywords:** Accident Prevention; Alcohol Sensor; Helmet Sensor; Wireless Charging Unit

## I. INTRODUCTION

In the dynamic world the increasing the usage of vehicles we are seeing huge number of accidents every year, these accidents may be due to many reasons like by drink and drive, driving rashly, exceeding the speed limit, etc. Every day numerous people die all over the world because of traffic occurring along the road. Here the vehicle to vehicle to communication, Blind spot warning system, back up camera technologies are used to prevent the accident. Wireless power transfer technologies are typically studied by three categories among which are inductive coupling, electromagnetic radiation and magnetic reasoning couple. The number of peoples does not wear the helmet. In many accidents the rider gets injured mainly on the head. A helmet plays a very important role in saving the life of the ridden So to encourage people to wear helmets and to avoid accidents, a design is proposed that synchronizes the module presenting bike/car. This project is reliable and saves the life.

## II. PROPOSED SYSTEM ARCHITECTURE

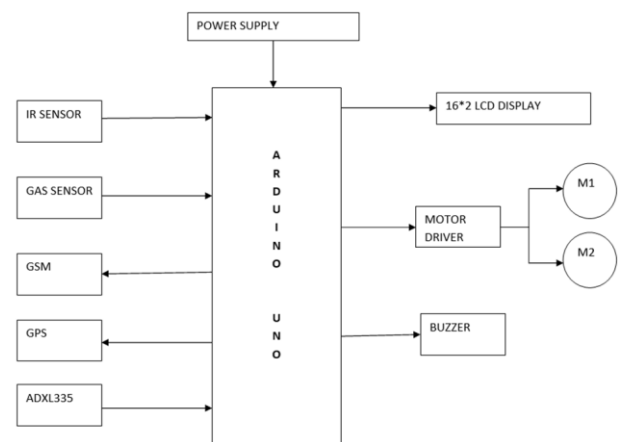


Fig 1. Block diagram of the Accident prevention system

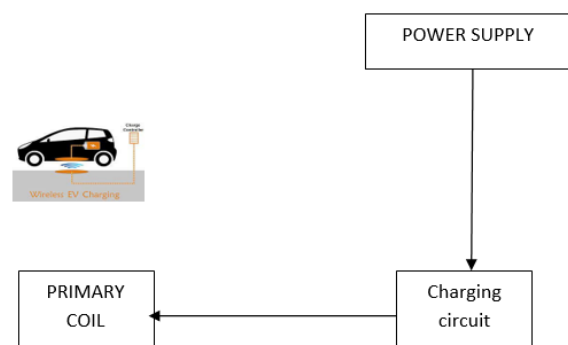


Fig 2. Wireless charging unit

Arduino UNO is connected to the input devices and output devices. Input devices are IR sensor, Gas sensor, GSM, GPS, ADXL335. The output devices are 16\*2 LCD display, Motor Driver, Buzzer. The power supply is supplied to the Arduino uno. Arduino UNO as the main microcontroller. IR sensor is used to Motion detector. Gas sensor is used to sense the gas. GSM module is used to send the alert message to the respective person. 16\*2 LCD

display is used display the message. Motor driver is module for motors that allows to control the working speed and direction of two motors simultaneously. The buzzer is used to produce the audio signal and in wireless Charging unit the power supply is given to the charging circuit to the primary coil.

### III. MATERIALS

#### A. *Arduino uno*

Arduino is a low cost, flexible and easy to use programmable open source microcontroller board. This board can be interfaced with other Arduino boards, Arduino shields, Raspberry pi boards and can control relays, LEDs, servos and motors as an output.

#### B. *Gas sensor*

It is electronic sensor used for sensing concentration of gas (LPG, CMG smokes etc). In vehicles if any gas leakage is detected it will show a notification in the mobile phone.

#### C. *LCD display*

It is used display the status of the device.

#### D. *ADXL335*

The ADXL335 is a accelerometer sensor. Connect the VCC pin of the accelerometer to the 5V pin of the Arduino and GND pin of the accelerometer to the GND of Arduino.

#### E. *GSM*

It is used a standard communication interface RS232, USB.

#### F. *Motor driver*

It is commonly used for motor interfacing and acts as an interface between the motors and the control circuit.

### IV. METHODS

This project involves Accident prevention system by monitoring safety parameters. Accident detection and alerting the concerned people and tracking accident occurred spot Wireless charging unit for electrical vehicles.

Our module mainly concentrates on prevention of accident by monitoring safety parameters continuously

Any of the safety parameter found to be abnormal then immediately ignition will be turned off by the main microcontroller in order to avoid accidents.

If all safety parameters were normal then also if vehicle met with accident means controller immediately send alert SMS with location to the concerned people so that they can reach as early as possible.

Our vehicle is setup with wireless charging in order to charge at the charging stations.

### V. ADVANTAGES

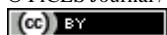
- a) It helps to detect and report the accidents
- b) The cloud computing infrastructures are utilized for building the systems
- c) The related details are sent to the emergency contacts by utilizing a cloud based services
- d) Can detect human breath by alcohol sensor

### VI. FUTURE SCOPE

The above mentioned solutions are either dependent on some hardware such as sensors that have to be present in the car or require a smartphone to be present within the vehicle. Although the use of such hardware turns out to be a more cost-efficient approach, it has the drawback of being destroyed in the accident and hence giving false or no readings at all. Therefore, a competent solution that does not depend on any hardware device or sensor is required for the prevention of traffic accidents. Further improvisations include installing a vision system for recording the activities of the driver. The recorded information then can be used by the controlling authority for monitoring the traffic and safety rules. It can be upgraded by mounting the wireless transmitter on cars which is helpful for enhanced communication vehicle to vehicle.

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