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Smart Helmet using GSM GPS Technology

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Abstract: *A motorcycle frequently called motorbike or two-wheelers, which is the most used than another form of automobiles because of its low price. But another side, this is the most unsafe automobile. The accident can happen for driving fast or drunk driving. Safety and security in vehicle traveling are a pre-eminent concern for all. With the rapid urbanization and staggering growth of transport networks like two-wheeler vehicles, safety on the roads and security on the bike has emerged as an inescapable priority for us. It has expanded the rate of accidents, which leads to several damages with loss of lives. In many circumstances, we cannot able to detect the accident's location. A helmet is a form of protecting gear worn to keep safe the head from injuries. More specifically, the helmet aids the skull in protecting the brain. A smart helmet can detect the accident's locations also save lives and makes two-wheeler driving safer from previously. This paper propounds a smart helmet system to avoid the accident. The system divides into three parts helmet circuit, automobile circuit, and mobile application. At first, the helmet circuit has IR and alcohol detection sensor. The automobile circuit has a 3-axis accelerometer, Bluetooth module, relay, and load sensor. The helmet circuit sends a signal to the automobile circuit to start if the helmet is wearied and no alcohol detects. Then the automobile circuit checks the status of the load to start. 3-axis accelerometer senses crash or hit. After detecting an accident mobile application sends the accident location automatically to police and emergency contact number via the database.*

Keywords: Smart Helmet.

I. INTRODUCTION

1.1 Background of Project

In recent times helmets have been made compulsory in All States. In India, traffic accidents are increased day by day. From the Motor Vehicles Act, 1988, Section 129, we know that when a person rides a two-wheeler they should wear protective headgear which must be following the Bureau of Indian Standards. Also, from the Motor Vehicle act 1939, we know that it is a criminal offence and the rider will get punishment if a drunken driving under the influence (DUI). But at present the bike rider forgot or intentionally does not follow the rules and regulation and if identified, they can easily overcome the situation from the law. This problem motivates us to design this technique.

1.2 Statement of the Problem

During the study for the project, we got acknowledged to various scenarios, where, bike accident is occurred in remote places and rider cannot capable to communicate with ambulance or family Increases the possibility of death of the person in case of late medical response. In past years road death increased to 1.49 lakh. Out of that, 25% crashes occurred with two-wheeler. Those who died, over 50% did not wear helmet. 1.5% bike crashes occurred due to drunken bike riding. Also, there have significance factor that people got helpless when they are facing such type of accident condition. So, by this project we are aimed to reduce the accident death by providing them health support.

II. METHODOLOGY

The system comprises of many sensors which are installed on helmet. The main processing takes place in arduino microcontroller which is based on atmega328p micro controller. Alcohol sensor is connected to uno which reads alcohol levels from riders breath and sends it to microcontroller. Force sensor detects if the rider is wearing helmet or not. Gyroscope detects when rider falls down due to accident. Gsm is used to send SMS of location which is fetched from gps module.

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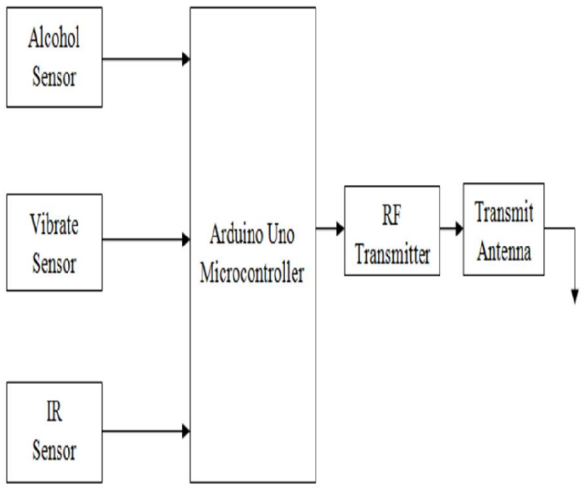

Fig.1 Transmitter side block diagram

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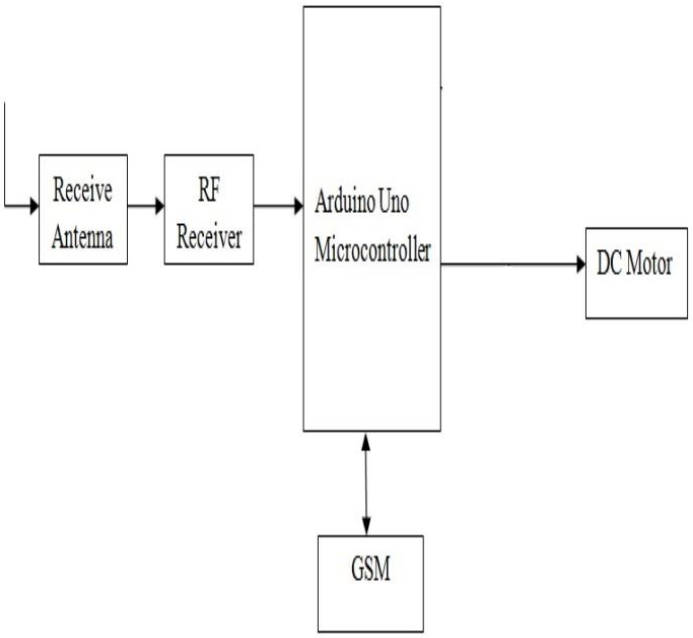

Fig.2 Receiver side block diagram

At the starting micro controller checks if rider is drunk using alcohol sensor, if he is drunk or not wearing helmet micro controller turns of relay hence bike wont start.

When accident happens huge g forces are applied on body which is detected by gyro scope sensor .Hence when accident is detected live location is fetched from the gps module and the live location is sent to authorities and family members informing about the accident

2.1 Advantages

1. Helps in improving safety of the rider
2. Low cost
3. Compact
4. Easy to manufacture

2.2 Application

1. Can be used to increase road safety
2. Can be used in enforcement of traffic rules such as no drink and drive
3. Can be used for alerting ambulance

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