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"IDENTIFICATION AND PREVENTION OF ACCIDENTS USING SMART HELMET AND GPS SYSTEM"

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Abstract: As we know India is minute most populated country and contains a broad youth populace, these days youth are warm of bikes and since of plan, they ignore wearing defensive cap. Since of these, bike mischances are extending day by day which causes passings. Major passings are due to head wounds which can be dodged by wearing a head defender. Failed and drive cases are getting to be more, which causes mischances and due to require of carelessness where an incident happens and people are gnawing the clean. These events made us make a quick defensive cap utilizing web of things which decrease the disasters and chance of passings, which has taking after highlights, the bike starts because it wereon the off chance that the rider wears a defensive capon the off chance that the rider is over failed at that point the begin will be actually off. and on the off chance that any disaster happens at that point through appear will send the alert message to the concerned watchmen. The objective of the sharp defensive cap is to supply a suggests and gadget for distinguishing and declaring disasters. Sensors, and cloud computing establishments are utilized for building the system. The disaster revelation system communicates the accelerometer values to the processor which ceaselessly screens for unconventional assortments. When an accident happens, the related focuses of intrigued are sent to the emergency contacts by utilizing a cloud based advantage. The vehicle region is gotten by making utilize of the around the world arranging system. The system ensures a tried and true and rapid transport of information relating to the incident in honest to goodness time and up dated to cloud which are gotten to by IOT.

I. INTRODUCTION

India consolidates a colossal number of road mischances each year. The mischances may bedue to various reasons like by drink and drive, driving rashly, outperforming the speed oblige,etc. In a few cases, the person who gets hurt mightnot be careful for the incident. It might be thefault of some other vehicle rider. But generally both riders will get affected. Due to a require of tostart with offer assistance and emergency helpful administrations on time, the riders may kick the bucket. A number of passings are due to the protect vehicle not coming to the desired region on time. In case of an mischance, to save time andexhort the concerned person, a system is proposedwhich can make past any question that the rider gets the required thought in a brief time. In India, numerous individuals utilize two-wheeler vehicles as compared to fourwheeler vehicles since of its moo gotten and straightforwardness.

In various mishaps, the rider gets hurt a very imperative portion in saving the life of the ridden So, to energize people to wear defensive capsand to preserve a vital remove from mischances, a arrange is proposed that synchronizes the module show in bike. The head guard framework comprisesof two modules, one is head protector(transmitter) and another one is bike (collector). Alcohol sensor, IR sensor and ultrasonic sensor are related insides the head defender unit and vibration sensor, GPS and GSM are related in vehicle unit. The transmitting and tolerating unit communicate wirelessly utilizing RF transmitter and recipient,utilizing Arduino.

The Net of Things (IoT) might be a concept that focuses to put through all of our standard objects to the Internet. It may be a modestly wide thought, with applications amplifying from cultivating to prosperity care to in fact common family stock such as a tv and cooler. The IoT industry has been on the increment over the past few a long time, and various advancements are happening in this industry. These days, it is incredibly far-fetched that we'll associated with a contraption that's not related to the net for without a doubt a single day. This advancement can be utilized in automobiles to recognize obstacles and offer help drivers evade collisions. An ultrasonic sensor can be presented within the front or raise bumper of a car to distinguish adjoining objects such as individuals on foot, other vehicles, or obstructions. The sensor at that point sends this information to the car's onboard computer, which can caution the driver through a visual or sound caution. The utilize of ultrasonic sensors in automobiles can unimaginably make strides secure driving by giving real-time information around the environment and allowing drivers to reply quickly to potential dangers on the street.

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II. PROPOSED SYSTEM ARCHITECTURE

The plan is classified into two parts transmitter part(helmet) and recipient part(bike) .The head protector unit is called transmitting portion and bicycle unit is called accepting portion.

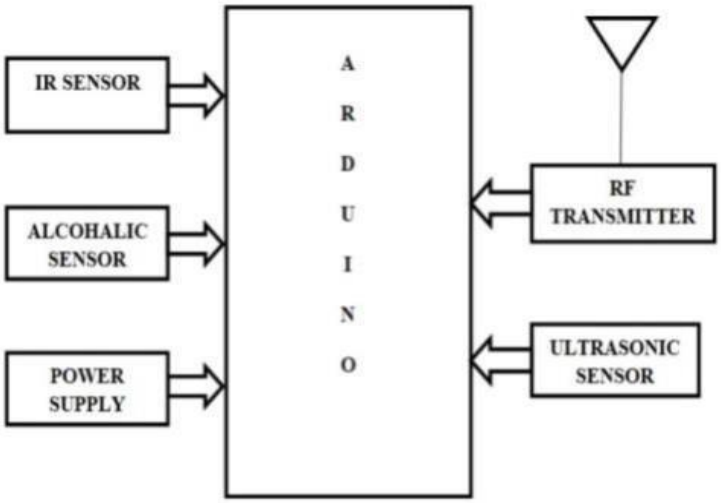

Fig .1 Block diagram of Helmet unit

To begin with we see transmitting portion. The IR sensor is set interior the head defender that sensor is utilized to identify the rider is wearing the protective cap or not and alcohol sensor is set in near to rider mouth for recognizing any alcohol substance some time recently riding. Ultrasonic sensor is put in behind the head protector for recognizing partition between two vehicles.

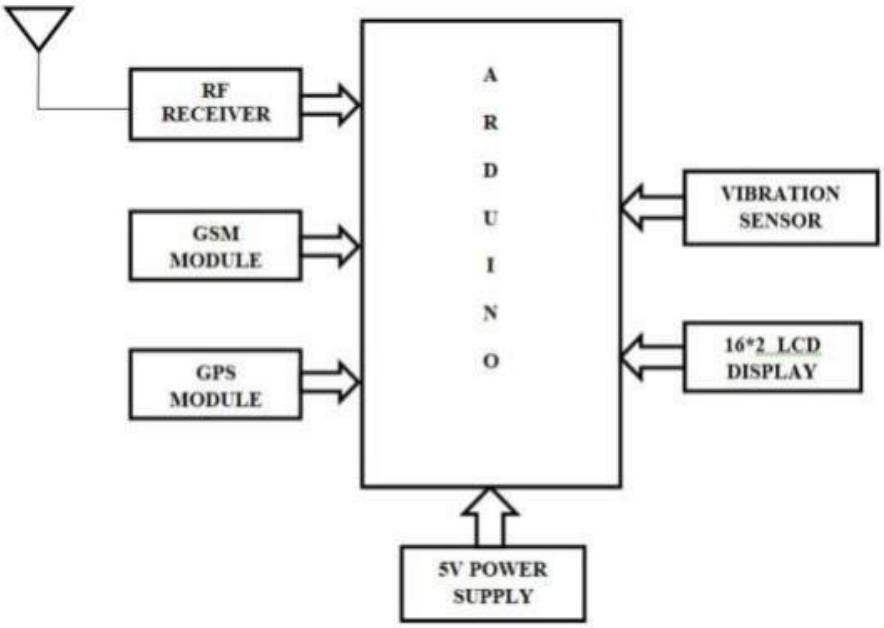

Fig.2 Block diagram of Bike unit

The getting portion comprises of vibration sensor, GSM and GPS module. The vibration sensor is utilized to recognize vibration in bicycle. On the off chance that any vibration is identified it'll send the information to Arduino and utilizing GSM and GPS to send a message to protect vehicle and family individuals with correct mischance area.

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HARDWARE REQUIREMENTS

1. Alcohol Sensor

The alcohol sensor is technically referred to as a MQ3 sensor which detects ethanol in the air. When a drunk person breathes near the alcohol sensor it detects the ethanol in his breathe and provides an output based on alcohol concentration.

2. IR Sensor

An infrared sensor (IR sensor) may be a radiation- sensitive optoelectronic component with a ghastly affectability within the infrared wavelength run 780 nm to 50 µm. IR sensors are presently broadly utilized in movement locators.

3. Vibration Sensor

The Grove - Vibration Sensor (SW-420) is a high sensitivity non-directional vibration sensor. When the module is stable, the circuit is turned on and the output is high. When the movement or vibration occurs, the circuit will be briefly disconnected and output low.

4. GSM Module

SIM800L GSM/GPRS module may be a smaller than expected GSM modem, which can be coordinates into a awesome number of IoT projects. You'll utilize this module to achieve nearly anything a ordinary cell phone can; SMS content messages, make or get phone calls, interfacing to the web through GPRS, TCP/IP.

5. GPS Module

This is often an upgraded GPS module that can be utilized with ardupilot mega v2. This GPS module gives the most excellent conceivable position data, permitting for superior execution together with your Ardupilot or other Multirotor control stage.

The GPS module has serial TTL yield, it has four pins:TX, RX, VCC, and GND.

6. Relay Module

The Single Channel Hand-off Module could be a helpful board which can be utilized to control tall voltage, tall current stack such as engine, solenoid valves, lights and AC stack. It is planned to interface with microcontroller such as Arduino, Hub MCU.

7. Arduino UNO

Arduino UNO may be a low-cost, adaptable, and easy-to-utilize programmable open-source microcontroller board that can be coordinates into a assortment of electronic ventures.

CIRCUIT DIAGRAM

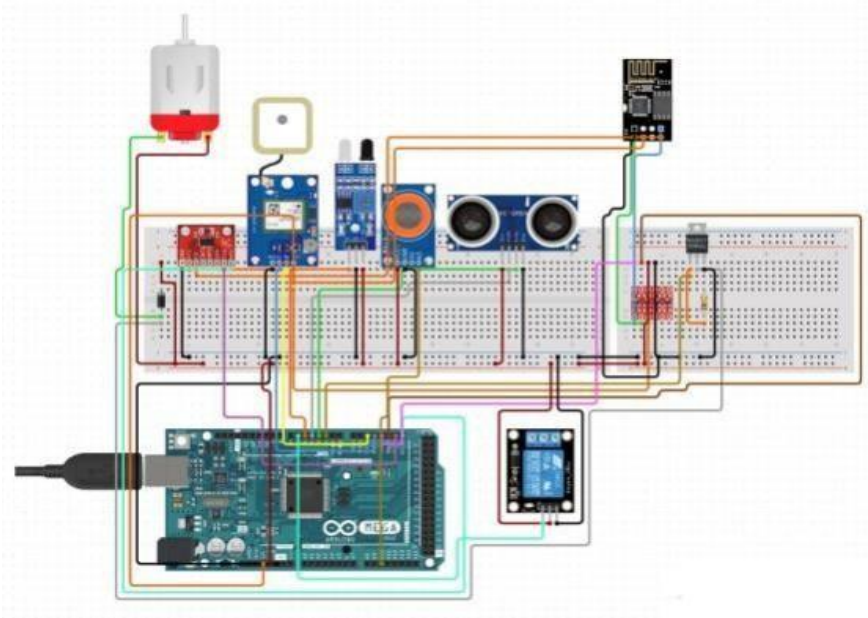

Fig.3 Circuit Diagram

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III. APPLICATIONS

1. Motorcycle Safety: The shrewd protective cap is custom-made for cruiser riders, cautioning them to potential threats related with liquor impedance or weakness. Real-time area following guarantees opportune help in crises.

2. Industrial Workplaces:
Specialists in mechanical settings, especially those working overwhelming apparatus, can advantage from the weakness location highlight, decreasing the chance of mishaps caused by impeded readiness

3. Emergency Response Teams:
Crisis responders, such as firefighters or paramedics, can utilize savvy protective caps to guarantee the well-being of their group individuals amid basic missions. Area following helps in planning reaction endeavors.

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