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RESEARCH PAPER ON INTELLIGENT AND SAFETY HELMET FOR A RIDER

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ABSTRACT

The effect when a motorcyclist includes in a mishap without wearing a head protector is perilous and can cause casualty. This paper will be planning head protector with some new inventive thoughts. Like for mishap reason, liquor recognition, start idea. This head protector parameters are dependable for making any cap to finish. Savvy protective cap is an inventive idea which makes bike driving more secure than previously. The circuit in every cap is structured in such a way, that the bicycle won't start except if the rider had not worn the cap. Some creator has examined on speed of a vehicle and liquor identification. When the alcoholic rider wear the head protector liquor will be recognized. In any case, liquor isn't the primary explanation behind the mishap numerous different conditions we will be taking a shot at that issues too. The brilliant and wellbeing cap will be the mix of the considerable number of highlights which are been examined n applied by the other creator and there will be a lot progressively other extra highlights created by us in this paper.

KEYWORD: Smart helmet, IOT, GSM, GPS, Sensors, Accidents Prevention, Alcohol, Message, Bikers.

I. INTRODUCTION

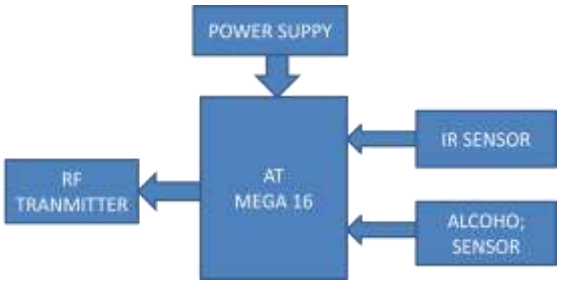
The idea of building up this undertaking comes to benefit a few things towards the general public. Step by step the bike mishaps are expanding and prompts loss of numerous lives. The reasons might be numerous, for example, no legitimate driving information, no wellness of the bicycle, quick riding of bicycle, tipsy and drive and so on. Streets mishaps are on the ascent step by step and in nations like India where bicycles are progressively pervasive numerous individuals kick the bucket because of imprudence caused on account of not wearing head protector. So as to stop this hopelessness we have built up the shrewd protective cap for cruiser the bike won't start without cap. It is being highlighted with the GPS and GSM based following framework so as to follow area of mishap. The undertaking is being actualized with all the sensor which will send the data to the module associated with the bicycle motor remotely. This shrewd bicycle head protector framework has two module, one on the bicycle. Mishap sensor, protective cap sensor are appended on the head protector.

II. WORKING OF MODULE

The proposed system is a smart helmet which will provide safety of a rider. We are designing universal helmet which consist of two parts- transmitter and receiver.

Transmitter is for helmet and receiver get used for bike section.

A. Transmitter section:



HELMET PART consist of sensors like IR sensor and alcohol sensor, accelerometer, transmitter and a microcontroller.

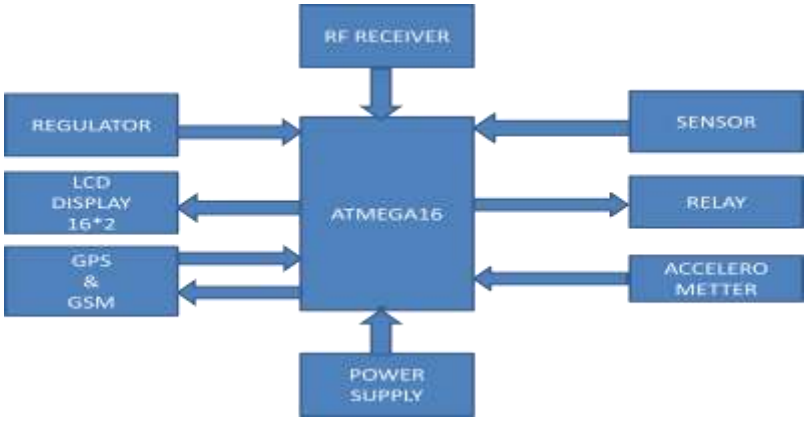
Alcohol sensor: Alcohol sensor used to breath. It provides an output based on concentration of alcohol consumed. If the rider exceeds with the amount of alcohol consume then the bike won't get started.

IR Sensor

IR sensor: It is an electronic sensor that measures infrared light radiated. It consist of emitter which is an IR LED, Detector which is a IR photodiode. The output of this sensor determines that the helmet is effete or not.

Microcontroller: The output from the sensor are send as a input on microcontroller. As per the threshold set on the alcohol sensor, IR sensor and accelerometer a decision is taken and passed on the module situated at bike wirelessly.

B. Receiver Section:



BIKE part consist of a receiver, microcontroller, GSM module, GPS module and abort switch receiver: A RF receiver operating at MHz radio frequency is used to receive the data over wireless medium.

Microcontroller: AT MEGA16 is a 8-piece superior microcontroller of Atmel's Mega AVR family with low force utilization. Atmega16 depends on upgraded RISC engineering with 131 incredible guidelines. The greater part of the guidelines execute in one machine cycle. Atmega16 can take a shot at a most extreme recurrence of 16MHz.ATmega16 has 16 KB programmable glimmer memory, static Smash of 1 KB and EEPROM of 512 Bytes. ATmega16 is a 40 pin microcontroller. There are 32 I/O (input/yield) lines which are partitioned into four 8-piece ports assigned as PORTA, PORTB, PORTC and PORTD.ATmega16 has different in-fabricated peripherals like USART, ADC, Simple Comparator, SPI, JTAG and so forth. Every I/O pin has an elective assignment identified with in-constructed peripherals. ATmega16 is a 8-piece elite microcontroller of Atmel's Mega AVR family with low force utilization. Atmega16 depends on upgraded RISC (Diminished Guidance Set Figuring) engineering with 131 ground-breaking guidelines. A large portion of the guidelines execute in one machine cycle. Atmega16 can deal with a most extreme recurrence of 16MHz.

GSM module: This GSM modem can acknowledge any GSM arrange administrator SIM card at simply like a cell phone with its own one of a kind telephone number. Focal points of utilizing this modem will be that you can utilize it RS232 port to impart and grew without any problem.

The modem can either be associated with Pc sequential port straightforwardly or to any microcontroller. It tends to be utilized to send and get SMS or make get voice calls. It can likewise be utilized in GPRS mode to associate with web and do numerous applications for information logging and control. In GPRS mode you can likewise associate with any remote FTP server and transfer documents for information logging.

The message will get send utilizing GSM module.

GPS module: Worldwide Situating Framework (GPS)satellites communicate microwave signs to empower GPS recipients on or close to the World's surface to decide area, speed, and time. The GPS framework itself is worked by the U.S. Branch of Barrier (DoD) for use by both the military and the overall population.

GPS signals incorporate running signs, used to gauge the separation to the satellite, and route messages.

Global positioning system is a satellite based radio navigation system and it is use to locate the location and based on the outputs of alcohol sensor and IR sensor, it will send a relay output to the engine.

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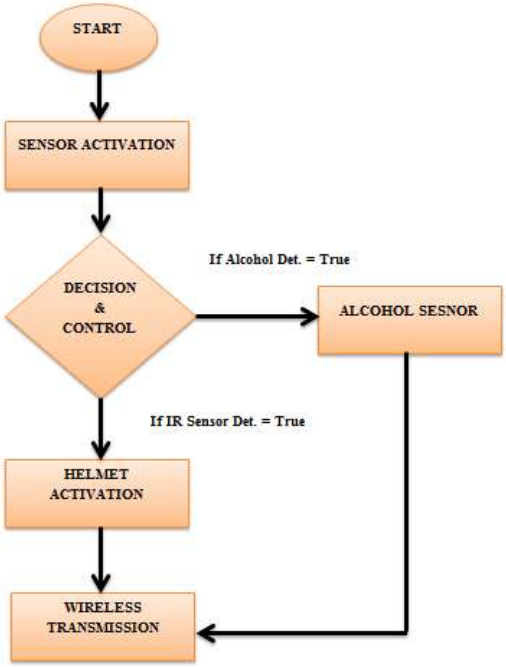
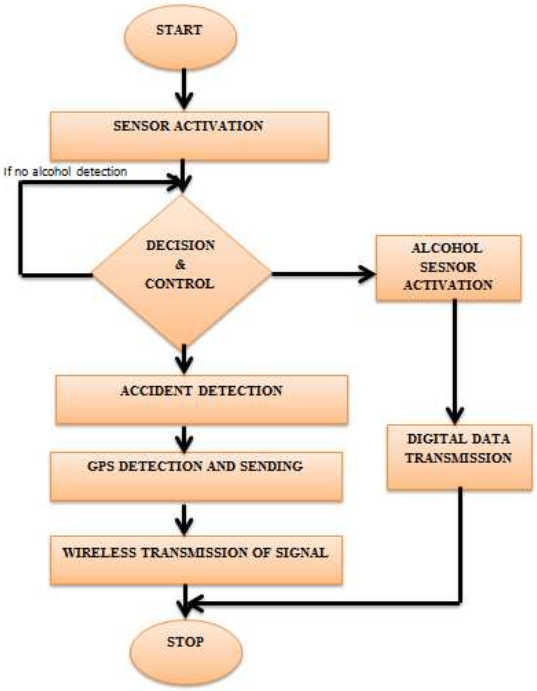
Accelerometer: An accelerometer is a transducer that is utilized to gauge the physical or quantifiable speeding up that is made by an item. An accelerometer is an electro-mechanical gadget that is utilized to gauge the particular power of an article, a power got because of the wonder of weight applied by an item that is kept in the casing of reference of the accelerometer. It is utilized to quantify the incline of bicycle and cap and it will yield as per the circuitary.

III. FLOW CHART

A. Transmitter section



B. Receiver Section



IV. ADVANTAGES

1) A helmet is a protective layer that is worn in order to prevent head injury.

2) It is utilized to validate with bicycle to open the start.

3) The life of rider on bike can be spared from street mishap.

4) Head protector markers are utilized for turning reason.

V. APPLICATIONS

1) It can be used in real time safety system. We can implement the whole circuit in very small module later.

2) This safety system can further be enhanced into four wheeler by replacing the helmet with seat belt.

3) Can be applied at any weather conditions.

4) Helpful for understudy.

5) Valuable for bikes.

6) Help to ensure life in mishap case.

VI. CONCLUSION

This Paper survey the brilliant and wellbeing protective cap for the rider. In some task they have utilized encoder/decoder IC, ultrasonic sensor that may cost extremely high .A few has just proposed a liquor indicator and mishap tracker and numerous other independently. In future the shrewd and security cap will having all the component that liquor locator, mishap area following framework and start together .The other element are too best in class that is the bicycle won't start except if the biker doesn't wear protective cap .The mishap tracker will follow the area where the mishap is caused and send the SMS .

VII. RESULTS

The design of smart helmet has shown the satisfactory results and works well. An emergency and accident alert system works well to combat the worst situations. And also the alcohol detection concept is working well. The Testing of each module was carried out successfully. The Parallel data from all sensors, detectors was successfully recorded. This was transmitted wirelessly from one module to other. This research has been completed as per the requirement and growing need in day to day life.

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