International Journal For Technological Research In Engineering
Volume 7, Issue 1, September-2019 *ISSN (Online): 2347 - 4718*

SMART HELMET FOR PROTECTIVE FOR BIKE RIDE

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Abstract: As the bikers in our nation are expanding, the street setbacks are additionally expanding step by step, because of which numerous losses, the vast majority of them are caused because of most regular carelessness of not wearing the caps, and furthermore numerous passing's happen because of absence of brief therapeutic consideration required by the harmed individual. This spurs us to consider making a framework which guarantees the security of biker, by making it important to wear head protector, according to government rules, additionally to get legitimate and brief restorative consideration, in the wake of meeting with a mishap. The proposed framework is a smart protective cap. A module appended in the head protector, to such an extent that, the module will match up with the module fastened on bicycle and will likewise guarantee that biker has not expended liquor. Extra component of mishap location module will be introduced on the bicycle ,which will most likely distinguish mishap and will almost certainly inform rapidly the mishap to police control room and on the off chance that if the mishap is minor, rider can prematurely end message sending by squeezing the prematurely end switch.
Keywords: ARM7 Microcontroller, Accelerometer, Alcohol Sensors, RF transceiver and RF receiver, Battery.

I. INTRODUCTION

There is a disturbing increment in the grimness and mortality because of bike street car crashes. This has involved extraordinary concern internationally. In India, it is assessed that one mishap happens at regular intervals. Information from the National Crime Records Bureau shows that passing's and wounds identified with street auto collision has expanded two and four crease individually amid the time of 1991– 2005. Purportedly 98,254 people were murdered in 2005 on Indian streets. The inhabitants and riders of bike vehicles are among the dominant part to be influenced in street auto collisions. Bike mishaps have likewise been appeared to have greatest case casualty in mishaps. Regardless of the wellbeing rules made by the legislature, numerous riders neglect to maintain them. The riders in India frequently sidestep the prime standard of wearing the head protector while riding bicycle. This prompts deadly wounds to the rider if there should arise an occurrence of mishaps. Aside from manual checking, there should be a framework that could authorize this standard upon the riders and thus keep them from bypassing it. One of the prime reasons that prompt mishaps is "plastered and drive". Because of drinking and driving bike riders frequently get into mishaps. Practically 70% of the mishaps in our nation can be anticipated if the riders quit expending liquor before riding. The general population associated with the mishaps should be dealt with and promptly taken to the crisis room. Be that as it may, there is a slack in dealing with the outcome of street mishaps in the nation.

II. LITERATURE SURVEY

Smart Helmet Using ARM7: There is a disturbing increment in the grimness and mortality because of bike street auto collisions. This has involved incredible concern universally. In India, it is this is a report about a brilliant cap which makes bike driving more secure than previously. The point of this task is to give data at mishap to rescue vehicle N relatives. This is actualized utilizing ARM7 microcontroller. This shrewd cap was actualized by setting vibrations sensors in better places of cap where the likelihood of hitting is more which are associated with belligerence board. At the point when the date surpasses least pressure limit then the GSM module sends message to relatives consequently. The equipment utilized in this framework is ARM7 board, GSM module, vibration sensor and cell phone.

Smart Helmet Using GSM & GPS Technology for Accident Detection and Reporting System: A savvy cap is an inventive idea which makes bike driving more secure than previously. It utilizes the GPS and GSM as its center advancements. The system of this keen protective cap is exceptionally straightforward, vibration sensors are put in various segments of head protector where the odds of hitting is more which are associated with microcontroller board. So when the rider crashes and the protective cap hit the ground, these sensors sense and give it to the microcontroller board, at that point controller remove GPS information utilizing the GPS module that is coordinated to it. At the point when the information goes underneath the base pressure limit then GSM module naturally sends cautioning message to emergency vehicle or relatives. The equipment utilized in this framework is liquor sensor, GSM, GPS, microcontroller, weight sensor and vibration sensor.

III. PROPOSED METHOD

The proposed framework is a clever protective cap. The framework guarantees the wellbeing of the biker, by making it important to wear the Helmet, according to the administration rules, additionally to get appropriate and brief therapeutic consideration, in the wake of meeting with a mishap. A module is joined in the head protector, to such an extent that, the module will match up with the module attached on the bicycle. The framework will bear following functionalities:

● It will guarantee that the rider has worn the protective cap. In the event that he neglects to do as such, the bicycle won't begin.
● It will likewise guarantee that biker has not devoured liquor. On the off chance that the rider is tanked, the bicycle won't begin.
● A mishap recognition module will be introduced on the bicycle, which will probably recognize mishap and will almost certainly advise rapidly the mishap to police control room and on the off chance that if the mishap is minor, rider can prematurely end message sending by squeezing the prematurely end switch.
It will comprise of two sections:
• Module on protective cap and
• Module on the bicycle.
Information from the protective cap will be transmitted remotely to the bicycle. As indicated by the different sensor input the smaller scale controller will choose the activities of different squares.

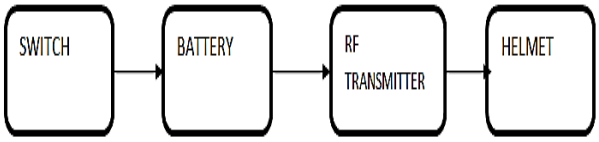

Fig: Helmet section

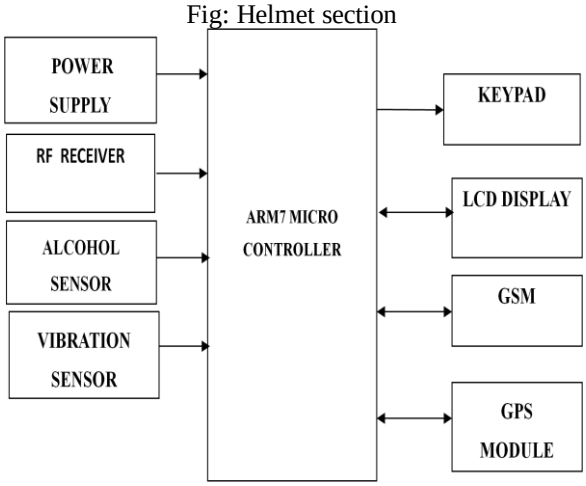

Fig: In-Built Vehicle Section

In this project, we design and develop a vehicle headgear for safe ride which will optimize the usage of the Arm7micro controller.

IV. SYSTEM DESIGN

The system consists of two parts: Helmet part and Bike Part.
HELMET PART: It basically consists of a switch, Microcontroller and Transmitter.
Switch:
Transmitter: A RF transmitter operating at 434 MHz Radio Frequency is used to transmit the serial data to the receiver over wireless media.
BIKE PART: It basically consists of a Receiver, Microcontroller, GSM Module and Abort switch.
Receiver: A RF receiver operating at 434 MHz Radio Frequency is used to receive the data over wireless medium.
Microcontroller: This is the genuine fundamental authority unit of the entire circuit and the ventures will be continued into it. As demonstrated by the data it will get from the module on bike it will control the yield of remarkable parts. In perspective on the yield of both the accelerometers on bike and head defender, it will send message to nearest police home office if there ought to be an event of a setback using GSM module, and reliant on the yields of alcohol sensor and switch, it will send a hand-off respect the engine.
Alcohol Sensor:Utilized for recognizing liquor fixation in breath. It gives a simple yield dependent on liquor focus. On the off chance that the measure of liquor surpasses the edge esteem it won't enable the bicycle to begin.
Accelerometer: An accelerometer can be utilized to quantify the tilting of the bicycle just as the head protector. The tilt of the protective cap is estimated and sent to the microcontroller. On the off chance that the point of the bicycle is zero (0) as for ground, it will distinguish that mishap has happened. Microcontroller: All the simple yields from every one of the sensors on the head protector are sent to this microcontroller as info. As per the limit set for liquor sensor, accelerometer and the low or high yield of the switch, a choice is made and sent to the module on bicycle remotely.
GSM Module: This GSM Modem can acknowledge any GSM arrange administrator SIM card and act simply like a cell phone with its very own remarkable telephone number. Applications like SMS Control, information exchange, remote control and logging can be grown effectively. The modem can be associated specifically to any microcontroller. It tends to be utilized to send and get SMS or make/get voice calls. We will utilize SMS use of it to send a SMS to the police headquarters if there should be an occurrence of mishap.

V. SYSTEM WORK FLOW

The rider wears the defensive top. Exactly when the head defender is worn, the switch distinguishes an obstruction and gives LOW yield. The alcohol sensor registers the alcohol content in the rider's breath, and Tilt of the defensive top is assessed by the accelerometer. All these sensor yields are sent as commitment to the microcontroller. The microcontroller shapes the data and sends it to the module on the bike through RF module containing RF transmitter and RF beneficiary. The beneficiary sends the data to the microcontroller on the bike module. If alcohol obsession is more than the cutoff, it won't empower the bike to start else the bike will run effectively. If the tilt of the bike and the head defender is zero with respect to ground then it will send a SMS to the Police station.

VI. RESULTS

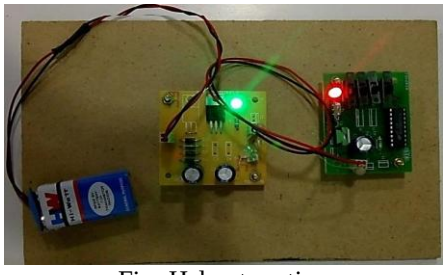
Fig: Helmet section

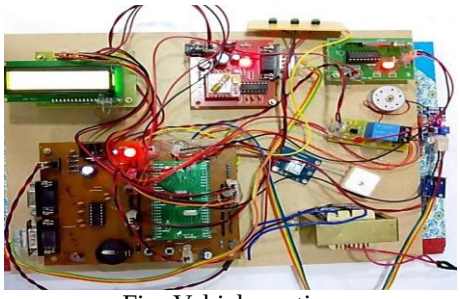

Fig: Vehicle section

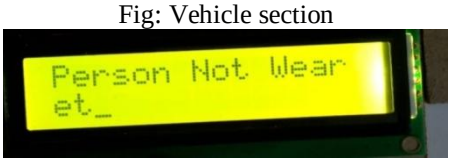

Fig: LCD Display Shows Rider not wearing helmet

Fig: LCD Display Shows Rider wearing helmet

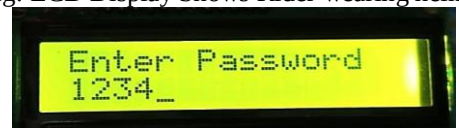

Fig: Security Password Entered

Fig: Checking the Parameters

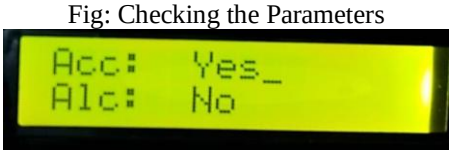

Fig:If Accident Detects

Fig:Sending SMS Alert

VII. CONCLUSION

Shrewd Helmet guarantees the wellbeing of the rider, by making it important to wear protective cap, and guarantees that the rider hasn't expended any liquor. On the off chance that any of these prime wellbeing rules are abused, the framework will keep the biker from beginning the bicycle. The framework likewise helps in productive treatment of the result of mishaps by sending a SMS with the area of the biker to the police headquarters. This guarantees the exploited people get legitimate and brief restorative consideration, whenever met with a mishap.

REFERENCES

[1] V. Krishna Chaitanya, K.Praveen Kumar, "Shrewd cap utilizing arduino", Hyderabad, 2013.
[2] R. Prudhvi Raj, Ch. Sri Krishna Kanth, A. BhargavAditya and K. Bharath, "Shrewd detective Helmet," AEEE, India.
[3] Manjesh N, Prof. Sudarshan Raj, "Shrewd Helmet Using GSM and GPS Technology for Accident Detection and Reporting System", International Journal of Electrical and Electronics Research, Vol. 2, Issue 4, October - December 2014.
[4] SudharsanaVijayan, Vineed T Govind, Merin Mathews, SimnaSurendran, Muhammed Sabah, "Liquor identification utilizing brilliant protective cap framework", IJETCSE, Volume 8 Issue 1 – APRIL 2014.
[5] RuizeXu, Shengli Zhou, Li, W.J. "MEMS Accelerometer Based Nonspecific-User Hand Gesture Recognition", IEEE, Volume: 12 Issue: 5, 05 September 2011.
[6] Muhammad Ali Mazidi and Janice GillispieMazidi, "The 8051 Microcontroller and Embedded Systems".
[7] "Remote mishap data utilizing GPS and GSM" September 15, 2012, Research Journal of Applied Sciences, Engineering and Technology, Maxwell Scientific Organization, 2012.

