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Highly Advanced Helmet with RF Transmitter

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Abstract:

Driving under the influence of alcohol or drugs, as well as carelessness, is the leading cause of mortality for motorcyclists. The timely arrival of emergency medical services, armed with accurate accident details, might have saved many lives. In order to address these present concerns, we are creating a helmet that offers the optimal answer. These primary concerns are what prompted us to create this initiative. The goal of our project is to create an affordable smart helmet with the ability to detect whether someone has been drinking and thereby reduce the likelihood of accidents. This smart helmet's primary function is to ensure the rider's protection. Incorporating state-of-the-art capabilities such as alcohol testing, accident identification, location tracking, solar power, and fall detection allows for its implementation. Wearing a helmet is essential in our project since, without one, the ignition switch would not turn on. In the event of an accident or intoxicated rider, the system will lock the ignition and send a message to the rider's registered phone detailing their present whereabouts. It has a Bluetooth function that lets you take a call without taking your hands off the wheel.

Keywords: Smart Helmet, IoT, GSM, GPS, Sensors, Accidents Prevention, Alcohol, Message, Bikers.

Introduction:

In today‟s fast paced life most of accidents happen due to drinking and driving. Most of the countries are forcing the motorists to weara helmet, however rules are being violated by uncivilized citizens. Thus, the objective of this project is to make sure people wear helmets and then ride bikes. Another objective is to make sure the rider isnt drunk. The rider won‟tbe able to ride the bike if he is drunk. One more objective is to reduce the fatality of the accidents by sending a message to the riders relative about the accident.

This is implemented by using advance features like alcohol detection, accidentidentification, location tracking, and use as a hands-free device, solar powered. Itscompulsory to wear helmet, without helmetignition switch cannot ON.

Literature Survey:

According to the recent Research paper in 2016 titled „2 Helmet using GSM and GPS technology for accident detection and reporting system‟, The author speciallydeveloped this

project to improve the safety of the bikers. The objective of this project is to study and understand the concept of RFtransmitter and RF receiver circuit.

The project uses ARM7, GSM and GPS module. The project also uses buzzer for indication purpose. Whenever the accident willoccur then accident spot will be note down andinformation will send out on the registered mobile number. [2] The major disadvantage ofthis project is they are not using any display device for showing the current status. Also, thecost of helmet is still high since helmet is designed for only one purpose. According to the Research paper in 2015 titled

„Microcontroller based smart wear for driver safety", In this paper author has discussed on the speed of the vehicle. In this application the project will be monitoring the areas in which the vehicle will be passing. On entering any cautionary areas like schools, hospitals, etc thespeed of the vehicle will be controlled to a predefined limit.

LCD is used for showing the various types of messages after wearing the helmet. The author has worked only on the phenomenon ofaccident which is generally happens due to drunk and drive. But as we know that the accident in the area is not happens only due to consuming alcohol but also other parameters like speed are also responsible. According to the Research paper in 2016 titled „Smart Helmet", In this paper the main objective of author is to force the rider to wear the helmet. In this competitive world one of the surveys says that the death trolls due to motor bike accidents are increasing day by day out of which most of these casualties occurs because

of the absence of helmet. Traffic police cannot cover remote roads of city. That"s why over primary objective is to make the usage of the helmet for two wheelers" compulsory". Thus, no one other than the owner himself, who doesn"t have "password" which would have been created by the owner, can use the bike. Inthis author has proposed the feature that the bike will not start unless the bike rider doesnot wear the helmet. The other this module basically deals with the checksum of rider if heis wearing the helmet or not on first place to achieve this ultrasonic sensor is been used. based on this the signal are been sent to the next module voice recognition module use for authentication purpose. Arduino is also used inthis project which is an open-source tool for making computer that can sense.

According to the Research paper in 2015 titled

„Smart Helmet", In this project the author has proposed the smart helmet because of growing bike accident. People get injured or might be dead because of not wearing helmet. Continuously

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no one follows road rules. So, to overcome this problem this helmet is been designed. The middle-class families prefer to buy motor bike over four wheelers, because of the low prices, various variety available in the market. Author has also used encoder IC that receives parallel data in the form of address bits and control bits the other author has used smart system for helmet. But in this project author have not focused on the major issue thatwill occur in future regarding the alcohol and many other.

Limitations and challenges in Existing Systems:

1. Bikers do not wear helmets in the region where traffic checking is not done.

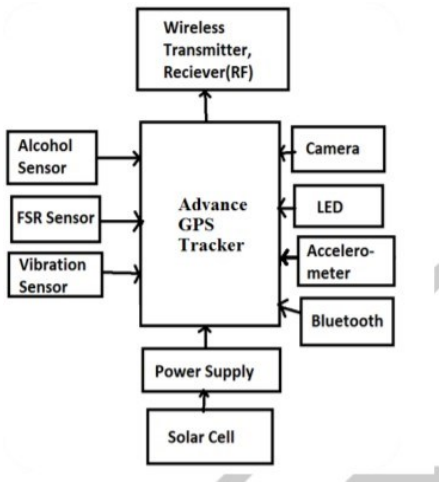
2. There is a tendency of the driver to wear helmet only where the anticipate checking maytakes place, they do not wear helmet where no checking is done.

3. The vehicle may be turn on or may be stolenby passing the ignition switch.

4. Testing alcohol content present in blood in each individual rider in big countries like Indiais almost impossible.

5. Accidents due phone calls as previous helmets do not contain Bluetooth speakers.

System Architecture:



Scope of Improvement:

There is always room for development and further growth in every system. Each of the systems included in the literature review has its own unique characteristics. Every single one of
As of yet, the sole purpose for the proposed technologies is the transmission of accident notifications. It is possible to have such a system that just detects alcohol. There are a lot of

new, complex features in this system, and all of the old functions are combined into one. If the rider is wearing a helmet and gets into an accident, it will send a notification automatically. Due to the usage of an RF transmitter and receiver, the two-wheeler cannot be started unless the rider is wearing a helmet. The ignition will be locked if the alcohol sensor detects that the driver is under the influence of alcohol. The solar panel is powering the system. You can quickly trace the whereabouts of a stolen bike using this feature. It also has built-in Bluetooth speakers, so you can listen to calls on the go.

Conclusion:

Thus, this technology serves its intended function of ensuring the user's safety admirably. Riding a bike requires the user to wear a helmet, which in turn encourages them to obey traffic laws. Using this approach is as simple as riding a two-wheeled vehicle while keeping an eye on your belongings and your finances. The features of this system are user-friendly. As a result, the motorcyclist is more protected.

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