A Review on Smart Helmet

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ABSTRACT- Over speeding, intoxicated driving, and reckless driving are the leading causes of mortality among two-wheeler drivers. If emergency medical services had received accident information and been on the site in time, many lives might have been spared. To address these existing problems, we are working on a helmet that will provide the greatest answer. These are all the main issues which motivated us to start this project. The purpose of our research is to develop a low-cost intelligence helmet that can detect alcohol consumption and prevent road accidents. This intelligent helmet's main goal is to keep the user secure. To do this, advanced functions such as alcohol monitoring, collision detection, position tracking, and use as a handsfree device, as well as solar powered as well as fall identification, are employed. In our project, wearing a helmet is required; otherwise, the ignition switch would not turn on. If the rider is inebriated or an accident occurs, the ignition switch is immediately locked, and a message with their current position is sent to their registered phone number. It has a Bluetooth function that allows you to receive a call while driving.

KEYWORDS- Accidents Prevention, Alcohol, Bikers, Smart Helmet, Sensors.

I. INTRODUCTION

The bulk of accidents in today's fast-paced society are caused by drinking and driving. Most countries require motorists to wear helmets, but uncivilised individuals often disobey the rules. As a consequence, the project's aim is to encourage people to wear helmets when riding bicycles [1]. Head injuries sustained in a collision are the most frequent cause of death and disability. If a good helmet is worn regularly and properly, such deaths and disabilities may be prevented [2]. Whenever a motorcyclist is involved in a high-speed collision without wearing a helmet, the result can be fatal [1]. Wearing helmets can help lessen the amount of shock you get and possibly save your life. Motorcyclists in several nations are expected to wear helmets while on the roadway by law. Another goal is to ensure that the motorcyclist is not inebriated. If the rider is inebriated, he will be unable to control the motorcycle. Another aim is to reduce accident deaths by sending a notification about the event to the passengers' families [2].

Progressed highlights like as liquor discovery, mishap identification, area following, and use as a without hands, sunlight based controlled gadget help to accomplish this.

Wearing a helmet is required; else, the start switch won't turn on Smart protective helmets incorporate a scope of electronic gadgets and sensors that empower clients to accumulate continuous information and, over the long haul, decline functional dangers and upgrade wellbeing. To detect designs, scientists checked out the sorts of sensors, microcontrollers, and remote correspondence advancements used in brilliant protective helmet studies. Notwithstanding the way that brilliant helmets have progressed farther than any time in recent memory, a critical number of genuine auto collisions keep on happening across the world. The primary driver of street mishaps incorporates human mix-ups, for example, disregarding traffic rules, utilizing a cell phone while driving, and eating and drinking while at the same time driving. This might prompt a serious mind harm and passing. Traffic infractions are answerable for 25% to 30% of all mishaps, as per earlier examinations. Over 70% of motorcyclists drive without wearing a protective helmet for reasons unknown [3].

As per to a Government of India statistic, 55 crashes happen every single hour, with road accidents accounting for 70% of all fatalities [3]. There were 480652 single-accidents in 2016. Each year, about 60000 traffic accidents occur as a consequence of sleepiness. The accident was caused by speeding, drunken driving, and a lack of expertise or attention. Overspeeding is to blame for 61% of all traffic accidents. The bulk of road accidents occur between the ages of 18 and 45. (68 percent).

In most countries, drivers are obliged to wear helmets and not exceed the speed limit, yet they continue to violate the rules [4]. Researchers developed methods like as auto ignition to solve this issue, which stopped the engine from starting until the rider had a helmet on his head. To avoid mishaps, a significant number of sensors have been used. Other methods are being explored, such as collecting speed data, restricting overspeeding, utilising GSM to provide medical help to injured people in the event of an accident, and using GPS to track the vehicle's location [5]. The project's development was aided by all of the sources mentioned in this page.

As indicated by a paper named 'Helmet involving GSM and GPS innovation for mishap recognition and detailing framework,' the creator fostered this project explicitly to improve biker security. The objective of this task is to find out about and comprehend the RF transmitter and beneficiary circuits. The undertaking utilizes an ARM7 processor, as well as a GSM and GPS module. The

undertaking additionally utilizes the utilization of a bell as a flagging gadget. At the point when a mishap happens, the area of the mishap will be recorded, and data will be shipped off the enrolled versatile number [6]. The fundamental burden of this undertaking is that no showcase gadget is utilized to show the current status. Besides, on the grounds that the head protector is intended for just one reason, the expense of the helmet stays high[7]. As per an examination paper distributed in 2015 named "Microcontroller based brilliant wear for driver security," the creator talked about the vehicle's speed. The task will utilize this application to screen the regions through which the vehicle will pass [8]-[9]. While entering any preventative regions, for example, schools or clinics, the vehicle's speed will be restricted to a foreordained breaking point. In the wake of wearing the protective helmet, the LCD is utilized to show different kinds of messages. The creator has zeroed in exclusively on the peculiarity of mishaps, which are every now and again brought about by inebriated driving. However, as we all know, accidents in the area are caused by more than just drinking alcohol; other factors such as speed play a role as well [10].

The writer of a 2016 research titled "Smart Helmet" claims that the document's major purpose is to compel the motorcyclist to wear a helmet. According to one study, mortality trolls related to motorcycle crashes are on the rise in today's competitive atmosphere, with the bulk of these deaths happening due to the absence of a helmet [11]. Traffic cops are unable to patrol the city's distant routes. That is why the main goal is to make wearing a helmet when riding a two-wheeler "mandatory." As a result, anybody who does not have the owner's "password," which was established by the owner, is unable to ride the bike [12]. A device that prohibits the motorcycle from beginning unless such user is wearing helmets has been proposed by this researcher. The other module works with the motorcyclist's checksum to determine whether or not he is wearing helmets. An ultrasonic sensor is used to do this. Following that, the signal is sent to the next module, the voice recognition subsystem, which is utilised for authentication. This concept also uses Arduino, an open - sourced tool for building computers that can perceive their surroundings [13].

The author of this project offered the smart helmets as a response to the growing incidence of bike crashes in a 2015 study paper titled "Smart Helmet". People are wounded or killed as a result of not wearing a helmet [14]. No one ever respects the rules of the road. As a result, this helmet was created to address these issues. Because of the cheap costs and wide variety accessible on the market, middle-class families choose to purchase motorcycles over four-wheelers [15]. In furthermore, the researcher used a parallel processing encoder IC that receives address as well as control bits in simultaneously. A smart helmet systems was used by the another researcher. However, the creator of this project has not concentrated on the main problem that may arise in the future about alcohol and other issues [16]–[18][19].

The prospect of fostering this undertaking comes to be really beneficial things towards the general public. Step by step the bike mishaps are expanding and prompts loss of many lives. The reasons might be numerous like no appropriate 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 more predominant many individuals bite the dust because of imprudence caused due to not wearing helmet. To stop this wretchedness we have fostered the brilliant head protector for bike the cruiser won't begin without helmet. It is being included with the GPS and GSM based global positioning framework to follow area of mishap. The task is being executed with all the sensor which will send the data to the module associated with the bicycle motor remotely. This brilliant bicycle head protector framework has two modules, one on the bicycle. Mishap sensor, helmet sensor is appended on the helmet.

Somewhat recently, the quantity of upgrades in shrewd head protector has been like never before yet a critical number of genuine street mishaps after still happen everywhere. The Main justification for street mishaps are brought about by human mix-ups, abusing traffic rules, utilization of cell phone, eating and drinking while at the same time driving. This might prompt serious head injury and demise. Past review shows that 25%-30% of mishaps are connected with the infringement of traffic rules. Over 70% of riders drive without wearing helmet with no particular explanation. As per the report given by the Indian government, in consistently 55 mishaps happen and 70% lost their life on street due to accidents.480652 mishaps happen alone in 2016. Around 60000 car crashes happen because of sluggishness issues. The mishap likewise happened in light of speeding, inebriated driving and absence of involvement or concentration. 61% of street mishaps are brought about by over speeding. The age bunch between 18-45 has a significant offer (68%) in the quantity of street mishaps. In the greater part of the nations, engine riders are compelled to wear the head protector and not to over speed the vehicle yet the riders are as yet abusing the principles. To defeat this issue, scientists worked by utilizing the techniques like auto start that engine didn't turn over until the rider wear the protective helmet on his head. Numerous sensors are additionally been utilized to stay away from mishaps. A few different strategies are likewise investigated, record the speed information, limit the over speeding, the clinical benefits can be accommodated harmed individuals when a mishap happens utilizing GSM, following the vehicle area utilizing GPS. These large numbers of references utilized in this paper are added to the improvement the task.

II.   DISCUSSION

As of late, brilliant helmets have quickly acquired fame among motorcyclists to upgrade their security and solace. Additionally, security guidelines for laborers are being fortified in numerous nations; subsequently, the developing reception of cutting edge wearable innovation, including savvy head protectors, is relied upon to drive the interest for individual wellbeing. This brilliant helmet be utilized continuously security framework, we can execute the entire circuit into little VLSI chip that can be implanted into the helmet and bicycle unit. This shrewd protective helmet can be intended for less power consuming wellbeing framework. This security

framework innovation can additionally be improved in vehicle or other vehicle by supplanting the protective helmet with safety belt.

The effect when a motorcyclist includes in a mishap without wearing a protective helmet is extremely perilous and can cause casualty. This paper will be planning helmet for certain new creative thoughts. Like for mishap reason, liquor location, start idea. This protective helmet boundary is dependable for making any helmet to finish. Brilliant protective helmet is an inventive idea which makes cruiser driving more secure than previously [20]. The circuit in every head protector is planned in such a way that the bicycle won't begin except if the rider had not worn the helmet. Some creator has talked about on speed of a vehicle and liquor discovery. When the alcoholic rider wear the protective helmet liquor will be distinguished. Yet, liquor isn't the principle justification behind the mishap numerous different conditions we will be chipping away at that issues moreover [21]. The shrewd and security protective helmet will be the mix of the relative multitude of highlights which are been concentrated on n applied by the other creator and there will be a lot more other extra elements created by us in this paper.

In this paper the excellent goal of creator is to drive the rider to wear the head protector all through. Considering the expanding number of cruiser riders in our nation and the quantity of mishap happening every year. In this aggressive world one of the study says that the losses of life because of engine bicycle mishaps are expanding step by step out of which the vast majority of these setbacks happens in light of the shortfall of protective helmet [22]. Traffic police can't cover distant streets of city [23]. That is the reason over essential objective is to make the utilization of the head protector for bikes" obligatory ". Along these lines, nobody other than the proprietor himself, who doesn't have "secret key" which would have been made by the proprietor, can utilize the bicycle. In this creator has proposed the element that the bicycle won't begin except if the protective helmet isn't worn by the rider. The other this module essentially manages the checksum of rider on the off chance that he is wearing the head protector or not on the lead position to accomplish this ultrasonic sensor is being utilized. In view of this the sign are been shipped off the following module voice acknowledgment module use for validation reason [24]. Arduino is likewise utilized in this project which is an open source instrument for checking out and control a greater amount of actual world than your PC [25]. Henceforth they have utilized ultrasonic sensor it is over the top expensive and the microcontroller is being utilized it might have significant downside in future as it can't adapt up to exceptionally refreshed world in future.

III. CONCLUSION

As a result, this method is highly beneficial for the user's protection. To ride a bike, the user must wear a helmet, and as a result, the rider will adhere to traffic regulations. This technique is budget-conscious, i.e. operating a two-wheeler while keeping safety as well as cost in mind. This system has simple functions. It gives the rider a greater sense of security. The smart helmet protects the rider's safety by requiring the use of a helmet, as well as

ensuring that the rider has not drank alcohol in excess of the legal limit. The suggested technology would prohibit the rider from starting the bike if any of these primary safety guidelines are broken. The technology also aids in the effective management of accident aftermath by sending an SMS to the police station with the position of the rider. If the sufferer is involved in an accident, this guarantees that he or she receives appropriate and quick medical care.

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