Retraction

Retraction: Driving Top Sliding Helmet with Better Air Ventilation Using Embedded System (J. Phys.: Conf. Ser. 1916 012222)

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This article (and all articles in the proceedings volume relating to the same conference) has been retracted by IOP Publishing following an extensive investigation in line with the COPE guidelines. This investigation has uncovered evidence of systematic manipulation of the publication process and considerable citation manipulation.

IOP Publishing respectfully requests that readers consider all work within this volume potentially unreliable, as the volume has not been through a credible peer review process.

IOP Publishing regrets that our usual quality checks did not identify these issues before publication, and have since put additional measures in place to try to prevent these issues from reoccurring. IOP Publishing wishes to credit anonymous whistleblowers and the Problematic Paper Screener [1] for bringing some of the above issues to our attention, prompting us to investigate further.

[1] Cabanac G, Labbé C and Magazinov A 2021 arXiv:2107.06751v1

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Driving Top Sliding Helmet with Better Air Ventilation Using Embedded System

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Abstract. A bike, otherwise called a motorbike or a bike, is the most well-known method of transportation because of its minimal effort. In any case, then again, this vehicle has been the most hazardous. The point of this task is to make a cap utilizing installed frameworks (explicitly, the Arduino microcontroller). It is hard to keep our loved ones refreshed nowadays. In the event that a bike rider is associated with an impact, find the head protector from far off. The vibration sensor is connected to the Arduino board in this venture, making the interaction much simpler. On the off chance that the rider has been in an accident, the vibration sensor detects it. If so, it imparts the sign sequentially to a GSM port utilizing Arduino and implanted C programming. The sensors are associated with the Arduino board's info pins. On the off chance that the vibration esteem passes the boundary, a sign is shipped off the GSM port with the GPS position. Subsequently, the message is shipped off to their families and companions. This savvy cap has a cooling fan and glass cleaner.

Keywords: Arduino, Helmet, Vibration sensor, GSM port, GPS.

1. Introduction

The use of wearable sensors to track physiological signs is rapidly becoming a necessity for determining the condition of the body and mind in natural settings. This has been made possible by small-scale analogue and digital integrated circuit technologies, as well as on-chip computing capacity for dealing with movement-induced objects in bio potentials that occur during everyday activities. In real life, physiological impulses are notoriously slow and have a poor signal-to-noise ratio (SNR). This necessitates the use of an amplifier with a high common mode rejection ratio; such high-quality bio-appliers are normally built into the analogue front end of massive stationary systems. Because of the various leads and electrodes required, such instruments are well suited for clinical settings where patients are typically stationary (except for cardiac stress tests), resulting in a low noise level [1]

2. Existing System
A motorcycle helmet is a form of protective headgear worn by motorcyclists. Motorcycle helmets help to keep riders healthy by shielding their heads in the event of an accident. They minimize the likelihood of a head injury by 69 percent and death by 42 percent [2]. In certain countries, their use is mandated by statute. A polystyrene foam inner shell absorbs the shock of an impact, and a protective plastic outer layer protects the rider. There are some types of helmets, including those that protect the chin and those that do not. Some helmets have features including insulation, face shields, sun visors, ear guards, and intercom [3].

A thin, hard exterior shell made of polycarbonate plastic, fiberglass, or Kevlar, and a soft, dense interior lining made of expanded polystyrene or polypropylene "EPS" foam are the two main safety components of a standard motorcycle helmet. The rigid outer shell serves the following purposes:

1. To keep a pointing projectile from penetrating the helmet and puncturing the scalp
2. To give the inner lining structure so it doesn't disintegrate as it comes into contact with abrasive pavement.

This is important because the foams used have low penetration and abrasion resistance.

The foam liner's aim is to crush during an impact, enhancing the space and time it takes for the head to stop and reducing its deceleration. To comprehend the function of a helmet, one must first comprehend the process of head injury. The popular belief that a helmet's function is to protect the rider's head from splitting open is incorrect [4-9]. Skull fractures are not life-threatening unless they are depressed and impinge on the brain underneath, and bone fractures heal easily. The consequences of a brain injury are even more severe. They also result in death, lifelong damage, or personality changes, and neurological tissue, unlike bone, has a reduced capacity to heal after an injury. As a result, the main goal of a helmet is to avoid traumatic brain damage, with head and facial injuries coming in second [10-21]. Figure 1 shows the Block diagram.

3. Proposed System
   The following enhancements have been applied to an ordinary helmet in this project to improve protection while keeping the rider's comfort in mind.

1. Accident is detected by the vibration sensor.
2. When a crash occurs, it uses GPS to map the position of the Rider and sends a message with the precise location of the Rider.
3. When an accident happens, it sends SMS messages to family and friends via GSM.
4. A ventilation fan is used, as well as glass washing.

3.1. Block Diagram
3.2 Hardware Requirements

- Arduino UNO
- Temperature Sensor
- MEMS Sensor
- Vibration Sensor
- IR sensor
- GPS
- GSM
- Bluetooth
- Wiper
- Buzzer

4. Result

The usual helmets that are made by corporations were updated, resulting in a modified helmet with extra features. These features ensure the rider's safety and comfort. A cooling fan was used for air conditioning, and front window wipers were attached for cleaning. If an accident happens, the GSM port will send a warning to the family, and the GPS will mark the precise location of the accident. The MEMS sensor will be alerted if the bike's tilt reaches a certain value. As a result, this helmet will ensure that the family is alerted in the event of a significant accident. Riders can also have a more relaxing journey due to improved air conditioning. And if it rains, the wipers can ensure that the rider has a clear view of the road.

5. Conclusion

A helmet has been updated for the betterment of a rider's experience and protection. When opposed to the already existing helmets, these modified helmets have a smoother and more convenient journey. The rider’s view will be visible during the stormy rains, and the body posture will be tracked. Any variations in the angle, as well as any tilts that are greater than the norm, will be tracked. The odds of survival have unquestionably improved. Longitude and latitude are accurately noted using
instruments, and appropriate texts are sent to family members. The rider’s chances are much less likely to lose their helmet and they are alerted if they have misplaced it.

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