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AN IoT BASED SELF LOCKING SYSTEM FOR TWO WHEELERS FOR RIDERS WITHOUT HELMET

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ABSTRACT

The basic idea of the work is AI based Helmet Wearing system. In India, almost 200 million individuals drive by bikes consistently. We ordinarily see individuals riding bikes without head protector and this is a typical sight these days. Consistently, in excess of 100 bikers pass on from head injury in India. 'Safe Trekking' ads won't function as individuals are not worried about the outcomes they should confront. In our undertaking, a camera is to be set before the speedometer in a point to such an extent that it covers the rider's face. At the point when the rider turns on the vehicle, the control unit begins working, looks for the cap's picture by taking constant contribution from the camera. On the off chance that the camera observes that the rider isn't wearing cap, it conveys a message to the microchip to switch the vehicle off. This keeps the rider from head injury and it just so happens, demise. Also, in any event, when the rider is riding for quite a long time and when he will in general eliminate his protective cap, the vehicle switches off genuinely. Hence, this saves the rider from cerebrum injury. Protective cap save people from head wounds, and keeping from those head wounds save people from death.

KEYWORDS-*Artificial intelligence, self locking, Speedometer*

I.INTRODUCTION

The aim opf the work is to make our country a safe riding environment. Bike riders must wear helmets to ensure a safe voyage. People do not normally wear helmets anymore since they do not consider it a serious issue; our project addresses this issue by mandating that all motorcyclists wear helmets. If a person needs to ride a bike, he or she must wear a helmet; only then will the bike begin to ignite. Our device assists the government and police officials in taking action against those who disobey the law, punishing those who do not wear helmets, and forcing riders to wear helmets. Despite the fact that the government requires motorcyclists to wear helmets, many do not.

Our device assists the government and police officials in taking action against those who violate the law, punishing those who do not wear helmets, and forcing riders to wear helmets. Despite the fact that the government requires riders to wear helmets, the riders do not. They will benefit from our product. Many lives are saved as a result of our product. Our goal is to get motorcyclists to use helmets without sensors, making them radiation-free.

[1] According to the paper, video clips from the roadside were taken and converted into images, and it first determines how many members are on the two wheeler, and then it determines whether the rider is wearing helmet or not by using the KNN (K Nearest Neighbour) classifier, which is based on the features of circularity, average hues, and average intensity of each head quadrants.

[2] The study on intelligent transportation systems for accident prevention proposed a smart helmet design that uses sensors to determine if the rider has worn the helmet and whether or not he has ingested alcohol. If the driver is wearing a helmet and has not ingested alcohol, the controller will start the bike; otherwise, the bike will not start. They also included the capability of sending notifications of accidents to designated cellphone numbers through GPS (to communicate the position of the accidents) and GSM (to deliver the message to the mobile).

This occurs when the sensors in the helmets become tilted, which is one of the key disadvantages because even if the rider leans down while wearing the helmet and the warning goes to the folks without any accidents, the accuracy in predicting accidents is reduced.

[3] The paper on Helmet presence classification with motorcycle detection and tracking describes and tests a system for the automatic classification and tracking of motorcycle riders with and without helmets. The method employs support vector machines that have been trained on histograms produced from motorbike riders' head pictures using both static photographs and individual image frames from video data.

The learned classifier is used in a tracking system to automatically segregate motorbike riders from video data using background subtraction. The riders' heads are segregated and categorised using the learned classifier. The individual classifier outputs are then averaged to classify the frames as a

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whole. Tests reveal that the classifier can correctly identify whether or not riders are wearing helmets in static pictures.

[4] The study on Internet of Things (IoT)-based smart helmet for accident detection and notification described a smart helmet that can detect and report accidents. The system is built using sensors, Wi-Fi enabled processors, and cloud computing infrastructures. The accelerometer measurements are communicated to the CPU, which continuously monitors for deviations, by the accident detection system. When an accident happens, the relevant information is communicated to the emergency contacts via a cloud-based service. The global positioning system is used to determine the location of the vehicle.

[5]According to Liu, Liao, Chen, and Chen's study Full Motorcycle Helmet Detection Scheme utilising Canny Detection, the investigations focusing on helmet detection employ a strategy to discover a full-face helmet in a scene utilising circle fitting on its Canny.

[6]The paper Smart Helmet System Using Alcohol Detection For Vehicle Protection offers a smart helmet system that identifies whether a person is wearing a helmet or not, as well as whether the person is drunk. If the driver is using a cell phone while driving, the bike will jam slowly. A transmitter in the helmet and a receiver on the bike are used in this system. A switch will be present to determine whether or not the person is wearing the helmet. In addition, an alcohol sensor is installed in the driver's helmet near the driver's lips to determine whether the driver is intoxicated.

II.PROPOSED SYSTEM

The solution we are attempting to promote is to require individuals to wear helmets anytime they ride a bike. We utilised a camera and a microcontroller. To make our project more effective, we used Image Processor in a novel approach. A camera module, an image processor, a switch, and a motor are shown in the block diagram.The block diagram has been shown in fig.1.

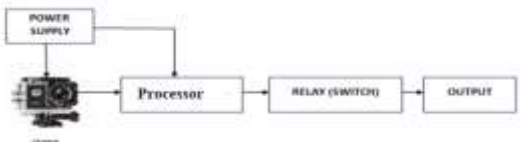

Fig.1.Block diagram

A. Camera

The camera module is positioned so that it focuses on the rider's face and helmet. It is positioned movably so that it can be adjusted for the rider's comfort. When the camera module receives power from the battery, it turns on. The camera module then feeds the image processor the continuous image output.

B.Image Processor

The image processor's goal is to determine whether or not the cyclist is wearing a helmet. The camera module's output is used as the processor's input. Some of the helmet image data has already been put into the CPU. The algorithm used to determine whether or not the rider is wearing a helmet is put into the CPU. When the processor is turned on, the algorithm compares the image output from the camera module to the data in the processor to determine whether or not the rider has worn the helmet. If the comparison is successful, the CPU sends a HIGH signal to the relay [switch], otherwise it delivers a LOW signal to the switch.

C. The Image Processor's Output

The image captured by the camera is converted into binary data and delivered to the controller, which switches the bike off if the image lacks a helmet and on if the image contains a helmet. Fig.2a and 2b .show the monochrome and binary images of the picture.

Fig.2a.Monochrome Image

Fig.2b.Binary Image

D. Switch

A switch connects the motor ignition to the processor output signal. The switch is generally in the open position. Only when the switch is shorted will there be signal flow. When the CPU sends the HIGH output signal, the switch shorts out, activating the ignition.

E. The Proposed Solution's Inventiveness

When compared to previous prototypes and products, the innovativeness of our solution is that we use a camera module, whereas the existing prototypes use various sensors such as ultrasonic sensors and infrared sensors. Thus, the originality in our technique is to employ a camera rather than sensors, which emit radiation and have a slow impact on human life. The power supply is not squandered in this case because it is drawn directly from the bike's battery. The image processor is also used to compare the photos, which is a unique aspect of our suggested method.

III.CONCLUSION

The most crucial part of our daily lives is road safety. As public knowledge of road safety declines and the number of accidents

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rises, we created this project to address the issue. Although we received some unfavourable feedback on our initiative, the majority of the customers we spoke with thought that this approach would be a viable way to handle the problem in cities where helmet-wearing riders are few. Our idea had a positive impact on bike manufacturing companies and bike riders, who believed that employing cameras rather than sensors is preferable because it has no negative impacts on the human body. However, the people with whom we connected had a key concern: what if the rider is in an emergency situation and loses his helmet? Will he be able to ride the bike? The answer will be "the rider cannot," because helmets are required, and even in emergency situations, driving without a helmet is not recommended because the worth of life is quite high.

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