Helmet safety & Locking system through an application by using a specific locking system in Self-drive/Public bike sharing mobile applications

Trishi Zenas Paul Petlu

Dept. of Aeronautical Engineering
Nitte Meenakshi Institute of Technology
Bangalore, India.
trishipaul02@gmail.com

Devaki Pendlimarri

Dept. of Computer Science and Engineering
Siddartha Institute of Science and Technology
Puttur, Andhra Pradesh, India.
mrsdevaki02@gmail.com

Abstract— **This Paper defines about the helmet safety and helmet locking system in public usage bikes and in all Self-drive mobile application in-order to enhance the safety measures, saving lives by creating awareness and to protect the public usage helmets from stealing by different locking systems in public usage bikes and in all the self- drive mobile application. This paper also creates an awareness for the riders to wear helmet as the rider must wear the helmet to start the vehicle such that the rider has more chances of a safe ride in self-drive mobile applications and public usage bikes. The helmet, which is the main aspect in this paper can be protected from stealing or can track any damages by different locking systems and by sensors respectively. This paper also determines that there can be an increase in users of such self-drive mobile application and even public usage bikes and can be economically in a better level in-order to provide more bikes for the society concerning the safety measures. Finally, the rider, the helmet can be safe and protected respectively, the self-drive mobile application can be at a good level in all ways.**

Keywords-helmet safety; helmet locking; locking system; self-drive; mobile application; wear helmet; WHSS; Place helmet; PHSS; place helmet and stop system; bike riding;

I. INTRODUCTION

Helmet is the basic and common thing for the bike users such that we must take it as a serious case to wear it while riding the bike in-order to safe oneself from the hazardous accidents. In these days it is common and compulsory to wear a helmet while riding a bike, so a rider should be aware and concerned about the helmet usage while riding the bike. Therefore, public usage bikes and self-drive mobile application should be aware that wearing helmet should be followed by the rider or the user of the self-drive mobile application while riding the bike. To be aware of the users, Wear-Helmet and start system (WHSS) should be introduced and used by the self-drive mobile applications such that the rider cannot start and ride the bike without wearing the helmet. Hence, in this way, both are aware, the rider wears helmet and the application are in control of the rider to wear helmet. By this we can easily create an instant awareness in all times without fail for the riders while riding the bike.

However, helmet has a great purpose of usage by the riders such that it has a great demand to use while riding the bike. In public usage bikes and self-drive mobile application, there will be a huge number of users such that protection of helmet must be considered as a special case by the self-drive application and public usage bikes. Therefore, helmet locking system is required to protect the helmet from stealing and to ensure that it can be used by the next rider safely without any damages. As the rider uses the self-driving application or any public usage bikes, the application must be aware that the helmet is safely placed by the rider before the end process. To be aware of the helmet after the ride, Place-Helmet and stop system (PHSS) should be introduced and used by the self-drive mobile application such that the rider cannot stop and end the ride without placing the helmet safely in the bike using a particular locking system arranged in the bike.

Therefore, it is one of the easiest ways to create awareness to the riders to wear helmet and it is must to wear helmet to ride the bike of a self-driving application or a public usage bike. Hence, we can ensure that whole process is done safely, without any errors or any disturbances for the user and self-drive application.
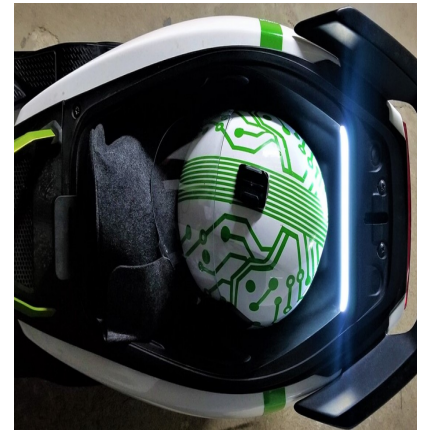
II. LITERATURE REVIEW

The Public bike sharing system are being used by many people today. The public should be able to use the public bikes without any lack and equally used by everyone.[1] The Helmet being a vital role in the public bike sharing system must be used in a smart way with a specific helmet system which can easily be controlled mainly in public usage bikes by keeping safety protocols in mind.[2] The Helmet should be used in a smart and safe way in public bike sharing system such that, using sensors can be easy and plays a key role in the implementation of the present work.[3] Knowing the importance of the helmet is the main basic study which is

helpful for the key role of implementation.[4] Sensors can easily implement the work in a smartest way such that the public bike sharing system can be safe in hands by using sensors in helmet.[5] The other major role which plays in the implementation of the work is cost. The sensor technology in the helmet in public bike sharing system can be used in a way such that there can a way to decrease the cost-effectiveness.[6] The understanding about the requirements for the control of the helmet locking system through a mobile application for the successful implementation of the work is an important task.[7]
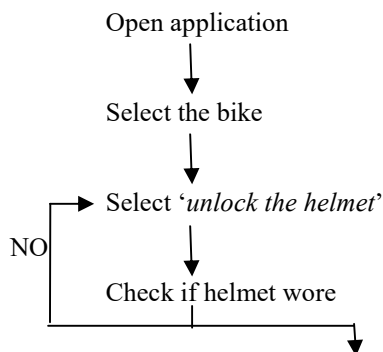
III.   IDEOLOGY AND IMPLEMENTATION

The idea of this work involves Helmet locking system which follows WHSS – Wear helmet and start system, PHSS -
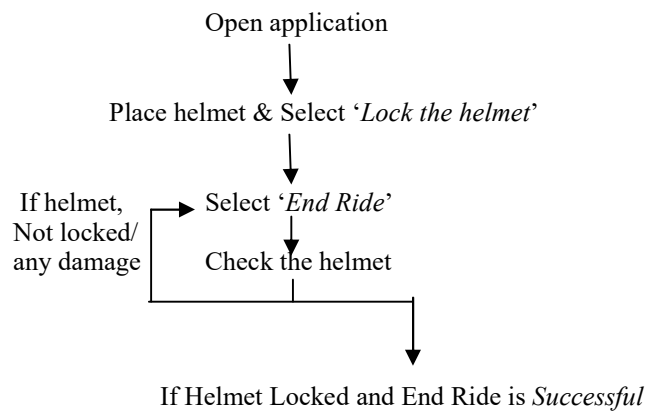
Place Helmet and stop system. For this, there are several locking systems which we can use for locking the helmet in the bike which is used by self-drive mobile application or in any public usage bikes.

A.   *Locking & unlocking helmet through the application*

The way of locking the helmet is an important task when a person is using a self-drive mobile application or any public usage bikes. The application should make sure that the helmet is used by the rider while riding the bike, placing, and locking the helmet in the boot space of the bike as shown below in the fig. as an example (The below fig. shows only how the helmet is placed).

The application uses and includes the helmet lock and unlock switch or as an option in the ride booking process. The rider should select the helmet option in the application and select unlock helmet option in-order to wear the helmet. The rider cannot start the bike without wearing a helmet even he has unlocked the helmet through the application. Therefore, it is known as Wear helmet and start system (WHSS). Similarly, the rider should select the lock helmet option in the application after placing (as shown in the above given figure). The rider cannot end the ride/stop the bike successfully and cannot select the ride end option in the application without placing and locking the helmet safely. Therefore, it is called as Place helmet and stop system (PHSS).

B.   *Representation of how to start the ride through an application*

Open application

↓

Select the bike

↓

Select '*unlock the helmet*'

↓

Check if helmet wore

NO

Start / Switch ON

C.   *Representation of how to stop/end the ride through an application*

Open application

↓

Place helmet & Select '*Lock the helmet*'

↓

If helmet, Not locked/ any damage → Select '*End Ride*'

↓

Check the helmet

If Helmet Locked and End Ride is *Successful*

D.   *Role & Mechanism of helmet in the bike*

The Helmet used here (in self-drive mobile apps) can be locked, unlocked, and monitor that the rider follows the application to lock, unlock and to wear the helmet while riding the bike through sensors. These sensors which controls and monitors the helmet throughout the ride are interlinked to the

bike system which is connected to the application. The user/rider can only use the application directly to control the helmet locking mechanism which is controlled by the sensors.

The sensor system, which is systematically emerged in the bike, controls the helmet to unlock, wear and lock by receiving and sending information to the application where we can control and monitor this whole mechanism in the application. In such a way, the can be able to unlock, wear and lock the helmet through an application by using a specific locking system (sensor) in the public sharing bikes/self-drive bikes.

IV.   ADVANTAGES

1. Creating awareness & Enhancing safety rules and precautions about how helmet plays a key role while riding the bike.

2. An easy plan and process to implement the ideology.

3. Not cost-effective to implement for this system.

4. Using sensor-systems is really an easy way to implement in this system.

5. This system brings a huge impact for the society, as there is no way, the helmet must be wore by the rider and there is unnecessary of any helmet checking protocols.

6. Can make sure that the rider's journey is safe as he must use helmet to ride the bike.

7. Can make sure that helmet is safe and protected and is available for the next rider in Self-drive bikes/public usage bikes easily.

8. Can gain more users of the application with such a good terminology.

9. Can increase the economical status of the application to provide more such bikes with safety rules & regulations.

V.   CONSLUSION

The main motive of this paper is to create awareness of helmets to wear while riding the bike and to make sure that the rider should wear helmet in-order to ride the bike, and helmet which is the main role for this system, it also should be protected by this system and safely used by the users/next rider.

This paper also enhances the safety protocols to follow by the rider to ride the bike and can also save the lives from any hazardous accidents, and self-driving mobile application can also be economically at a good level to provide more bikes to the society with this mechanism/system and idea which makes the ride in a better and safer way. Therefore, it is such an advantage for the society to be users for this self-drive application in all aspects.

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