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Innovations in Bike Systems to Provide A Safe Ride Based on Iot

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ABSTRACT: *Intelligence applications are being developed that make machines more sophisticated in their way of learning and to make decisions. Accident is a specific, unpredicted external action that happens unexpectedly with no apparent or deliberate cause but with marked effects. With the increasing number of bike riders and the number of accidents happening each year our paper focuses on the methods that can be implemented to ensure safety while driving. Distraction of the driver's attention is the major cause of these accidents. Nowadays wearing helmet has been made mandatory. But still the rules are being violated. Message transmitting sensors are equipped in the speedometer of bike and also in the bike's helmet. The most important feature of the bike is that the bike's engine gets start only when the person wears helmet. This system also checks the approaching vehicle's speed on either side of the road and generate vibrations in the bike's handlebar.*
This advanced development is bringing about a new era of productivity for the latest ideas on an astounding scale, understanding their efficiency, speed and functionality.
Index-Terms: *sensors, visor interface, scanners, locking system, cameras.*

I. INTRODUCTION

Despite an overall improvement in safety, motor-bike accidents are increasing day-by day and they continue to increase 24% of the total population. The thought of developing the system comes from the result of a survey hearing around "750" people die in road accidents occurring due to bike crashes per year.
Our project aims to ensure safety for the bike rider. There are many reasons for accidents to occur such as dunk and drive, rash driving etc. In most cases the rider suffers head injuries due to lack of helmet. One of the ways to reduce the impact is by making it mandatory to wear helmet while riding a bike. For this purpose, we are using sensors for detection. It handles almost all works of human beings with high degree of accuracy. As these applications set new standards to the organizations, many companies are ready to implement it.

Bikes

Bikes are used as the preferred means of transport and they are more popular. Our system aims in providing a safe bike ride by the use of the sensor that helps the rider know the approaching vehicles and generate vibrations in the bike's handlebar.

II. AVAILABLE TECHNOLOGY

The automobile industry is often considered to be one of the most global of all industries and also it offers global media coverage for the industry. It has a huge effect on our life, and its influence is growing steadily. Autonomous vehicles rely on radar systems, cameras and sensors to recognize patterns and learn the behavior of other vehicles on the road.

Self Driving cars were developed to improve safety that make use of head-up displays and gesture control. It was designed in such a way that it will give the driver better information to enhance the driving experience. By displaying information such as the current vehicle speed, braking guidance and hazards, the driver is able to maintain his whole attention on the road. The available technology uses a wireless telecommunication, which is connected to a smart phone. It uses sensors to detect accidents and the hardware speeds up to an emergency contact, thus helping the victim to reach doctors as early as possible.
The other system is to control the speed of the bike. The helmet is connected with the sensors that read the bike's speed and instruct the rider to reduce the speed.

Proposed Technology

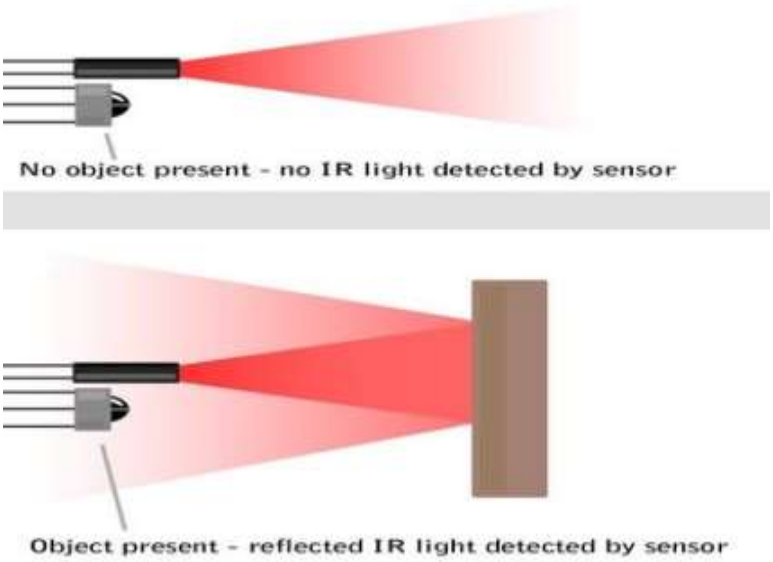
Our system aims in providing a safe bike ride by the use of the sensor that helps the rider know the approaching vehicles and generate vibrations in the bike's handlebar. When a person starts to ride the bike ,

the person has to plug in the bike key and the bike's coordinate system starts. It is operated through a wireless control system. Most of the time people never mind to wear helmet. Therefore the helmet is fixed with sensors to detect if the person is wearing the helmet or not. After the person has worn it , the helmet will automatically lock and the bike's engine starts. For this we use Infrared sensors.The components of this system are small and ensuring that the helmet is lightweight. Moreover, the components are spaced about the helmet to provide even weight distribution and promotes overall balance and safety..

Throughout human history, people have only used technology to model themselves. Each new technology has been exploited to build intelligent applications.

III. COMPONENTS USED SENSORS

Sensors are a way of interacting with the physical world and getting physical readings in digital form. Sensors play an important role in traffic monitoring. Sensors have been used for continuous monitoring of data on traffic demand, while accomplishing their primary safety and objectives. These systems could benefit riders by minimizing their distraction on road. Moreover IR sensors will alert us when some obstacle is there via feedback signals delivered to the handlebars. In other words, it vibrates when there's a car or another bike coming up from behind you, and lets you know with vibrations so you don't have to look away from the road ahead. The sensors are placed inside the helmet where the actual human touch is sensed to detect if the person is wearing the helmet or not. Sensors calculate the time interval between sending the signal and receiving the echo to determine the object distance. The basic concept of an Infrared Sensor which is used as Obstacle detector is to transmit an infrared signal, this infrared signal bounces from the surface of an object and the signal is received at the infrared receiver.



Depiction Of The Operation Of An IR Sensor

IV. WORKING PRINCIPLE

When a person starts to ride the bike , he has to plug in the bike key and the bike's coordinate system starts. When the rider wears the helmet, the helmet detects his/her presence by the sensor. If the rider fails to wear the helmet the bike's engine will not start as it is not locked.The sensor present in helmet sends a message to the sensor present in the bike's speedometer and the bike's engine gets started. By linking your smart phone to the bike, the sensor can even give you instructions with the help of an LED array embedded in the handlebars. It is built directly into the bike's handlebar so that it minimizes insecurity.The sensors scans the environment both from and back and lets the person know the vehicles approaching behind them. The sensors should be placed equally on itsfront-side and the rear sensor (aperture 75◦) and additionally the passive rear-side sensor (aperture 50◦), which only receives ultrasonic echoes emitted by the rear sensor. All sensors should be operating at a rate of 30 ms .

V. APPLICATIONS

It tracks Infrared (IR) light emitted by lightemitting- diodes (LEDs).It allows the rider to use the technology as an aid to fit process and minimizes distraction.This gives you the utmost confidence that you are being measured in the most accurate way.

VI. PROJECT IMPLEMENTATION SUMMARY

The bike is to be designed in such a way by identifying the functions that still need to be controlled by physical buttons and whichcould be controlled by fingerprints and carefully calibrated motion sensors where the calibration range of operation should be between 1.5 m(4.9 ft) and 3.5 m(11.5ft) of distance away from the sensor. The main focus while developing this system was to integrate these features in a more significant way. This system is currently being tested on a number of features including sun blinds, rear wipers and satellite navigation maps. It has the potential to be on sale within the next few years Still, cost is one major hindrance to the widespread use of safety systems.To facilitate the widespread adoption of such safety systems, the use of cost-efficient components is of crucial importance. Within this work we investigate the use of cost-efficient, widely used ultrasonic sensors for the tracking of passing by vehicles at high velocities.
Therefore, a particle filter with some mixture tracking capabilities is implemented to fuse the signals from us-sensors.

VII. RECOMMENDATIONS

In future we have a tendency to construct our system as globally acceptable . By implementing this mechanism in 2 wheelers, the road accidents due to driver's negligenceand alternative road fatalities will be reduced. The potential performance has not been completely explored yet, but we hope to continue to develop the project. The future will be self-learning and know all of our personal preferences. The Smart feature of this technology helps us to be punctual and intimate our daily schedule to work smarter and also minimizes manual work.

VIII. CONCLUSION

It also aims to increase public understanding, improve and provide guidance for research planners about the importance and potential of the system. It has huge potential to drive a new generation with creativity. They will bring brands closer to consumer expectations and passions. Smart technologies are growing steadily. The world of the future will be more demanding against the limitations of our own intelligence. These technologies will make the biggest impact on our lives in the forthcoming years. Advances in this system by good capital investments, are fueling a new era of which is likely to become an important concept. It is important for companies in all sectors to understand and adopt these bikes in order to ensure safety while driving. This paper is very useful in day to day life and adds extra safety while riding the bike.

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