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IoT based Smart Bike Monitoring System

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Abstract: Bike and vehicle collision often result in fatality to vulnerable bikers . Use of technologies can protect such vulnerable road users. next generation smart bikers with sensing ,computing and communication capabilities or bikers smart phones have potential to be integrated in an internet of thing environment. Unlike avoidance of inter-vehicle collisions, very limited effects are made on IoT integrated bikers and vehicles to avoid bike-vehicle collisions and offer bikers safety. Moreover, this IoT-integrated bike and vehicles will create new and different information and cyber security risk that could make exiting safety solution in effective to exploits potential of IoT in an effective way, especially in bikers safety, this proposes a security-aware biker`s safety management framework that integrate a misbehavior detection scheme(MDS) and collision prediction and detection scheme(CPD). The MDS, in particular also includes in –vehicles drivers behavior monitoring to identify potential misbehaving drivers. The frameworks MDS and CPD realizes on the improved version of some existing solutions use cases of the framework demonstrate its potential in providing bikers safety.
Keywords: Collision prediction and detection ,ultrasonic sensor and speedometer.

I. INTRODUCTION

Now a day's bike is the important thing in daily life it is too much critical to make the bike secured day by day. As the world moving towards the new edge of technology that is IoT so the system smart bike make the bike smart using the concept of IoT. System proposed the concept of smart bike which make the automation over the bike in which the bike is make secured in the way in which the all parameter security get implemented on that. In the proposed system is able to view the current location of the bike using GPS tracking sensor. System also added the new parameter like ON and OFF the bike using the mobile which will provide the new smart way to start the bike.

In this the bike will get completely automatic using the proposed work. sometime accidents are a major cause of death and disability. Public awareness and safety is one of the most important confrontations in the place of effective welfare for the bikers. A bike accident in highways and roadways is one of the increasing fatality rates for the previous years. With the help of project, it is desire to reduce the feasibility of dying because of bike accidents.

By using this system, it is possible to make advanced the two wheelers system by the sensor that monitors and control the speed. The sensor used in project to control the speed is the speed sensor. Here ultrasonic sensor is also placed in order to maintain the distance between the vehicles to avoid collision between the vehicles. The riders will be given indication when the control of the bike exceeds the particular limit.

The microcontroller used in this vehicle controls the whole sensors and devices connected in the speedometer and in the gear box. The buzzer alarms if the speed goes above 80km/hr. Because of this death, accidents and collisions can be avoid. The aim of project is to initially check whether the person riding the bike is aware about the speed control, distance between the vehicles in order to avoid the hazards. The emergency help is get directly connected to the system in which the bike is always in secured network.

II. BACKGROUND

The government has adopted in the field of "Internet of Things" as national strategic project, announcing that it is a master plan to achieve a leading country of a hyper connected digital revolution. The government has a promotional strategy of reinforcing the competitiveness in software (SW) sensor and its application based component and devices. IoT basically refers to the internet environment where people and machines all are connected to the guided and unguided network so as to mutually collect, create, utilize, and share information and services that includes sensors i.e. input information, devices for acquisition, clyde sharing of data i.e. utilization for application software..

The future scope of IoT, which will transform any real world object into intelligent virtual object. The IoT aims to unify everything in this world under a common infrastructure; giving us not only controls of the things around us, but also keeping us informed of that the state of the things. In this discussion, that we have presented a study that addresses IoT concepts through systematic review of corporate white papers, scholarly research papers, professional discussions with experts and online databases. Moreover, this

research article focuses on definitions, geneses, basic requirements, characteristics and aliases of Internet of Things.. The IoT is an innovative idea which will transform any real world object into intelligent virtual objects in the future. It enables user to identify everything in this world uniquely, take control over identified the things (e. g. Door Locks, Microwave, Lights, TV, Coffee Maker etc.) and keep informed about state of the things. This term IoT describes several technologies and research disciplines which tells that the internet reachable to every real world physical objects.

III. PROPOSED WORK

Public awareness and safety is one of the most important confrontations in the place of effective welfare for the bikers.and now a days bike is the important thing in daily life it is too much critical to make the bike secured day by day majority of people that are riding a simple bike which has no feature than riding, and majority of accidents are a major cause of death and disability. A bike accident in highways and roadways is one of the increasing fatality rates for the previous years. With the help of project it is desire to reduce the feasibility of dying because of bike accidents. System proposed the concept of smart bike which make the automation over the bike in which the bike is make secured in the way in which the all parameter security get implemented on that. Here ultrasonic sensor is also placed in order to maintain the distance between the vehicles to avoid collision between the vehicles. The riders will be given indication when the control of the bike exceeds the particular limit.

The proposed system is an IoT solution to the two problems that jeopardize the safety and health of the public. Firstly, in collisions involving a bike and another vehicle, The common key contributory factors to this type of traffic accidents recorded by police are negligence and failure to have a clear sight by either the driver or the rider.

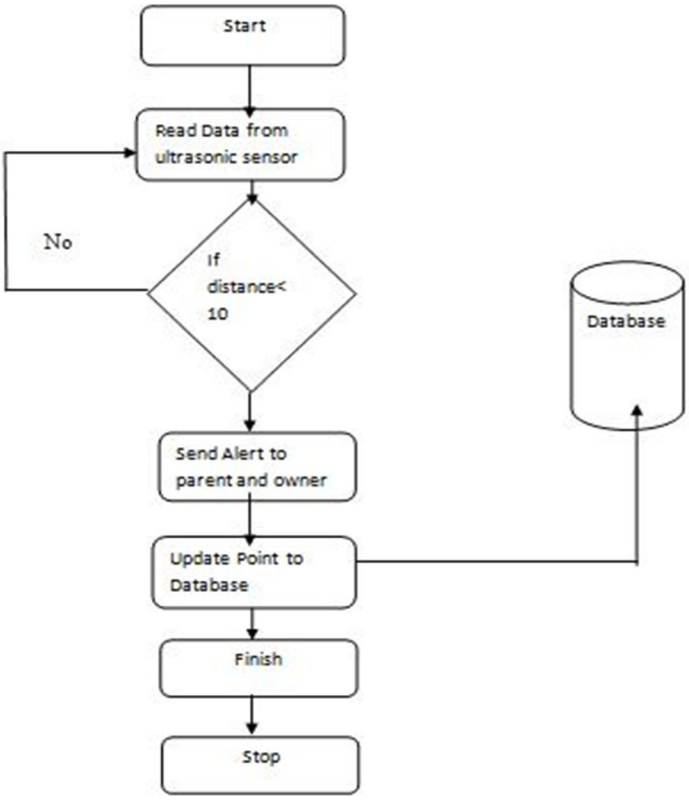

Fig.1. Data flow diagram for Accidental point detection

Sensors are a way of interacting with the physical world. 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. And sensors will alert us when some obstacle is there through feedback signals delivered to the smart phone. In other words, it alerts when there's a car or another bike coming up from behind you, and lets you know with notification so you don't have to look away from the road ahead and calculates all the points where the distance between our bike and vehicle on the road is minimum than normal distance and is send to smart phone..

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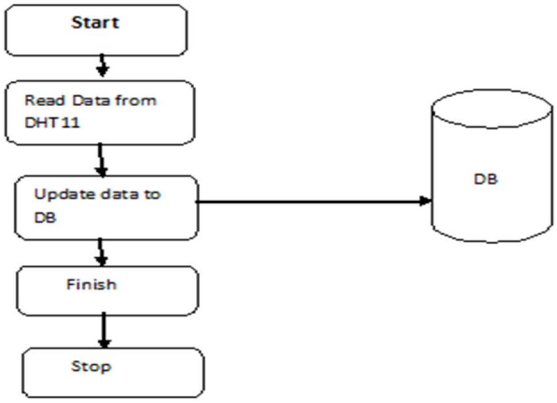

Fig.2 Data flow diagram for Engine manipulation.

To start the bike using android phone: As a hardware engineer some technology about the Electronic system of mobile, which is actually a standard IOT solution that can be applied to project.
There are three main modules in the system:

A. To start the bike using android phone.
B. To measure the engine temperature and environment Humidity..
C. To implement accident alert system.

IV. ADVANTAGES AND DISADVANTAGES

A. Advantages

1) Security: You can monitor your bike through your mobile phones, with the ability to control it. They can provide personal safety.
2) Stay Connected: You and your parents can always be in the network. You can virtually stay connected.
3) Your Pocket Personal Assistance: IoT Applications can provide personal assistance who can alarms on every action.
4) Road Safety: It is an IoT based smart bike monitoring system in bike that can detect a bike crash or accidents on roads. If a crash or accident has occurred and it automatically notifies the parents about accidental location.

B. Disadvantages

1) Complexity: The IoT is a diverse and complex network. Any failure or bugs in the software or hardware will have serious consequences. Even network failure can cause a lot of inconvenience
2) Privacy Issues: There is always the possibility of hackers breaking into the system and stealing the data. There is an possibility of misusing your information…
3) Compatibility: As devices from different manufacturers will be interconnected in IoT, based system presently , there is no international standard of compatibility for the tagging and monitoring equipment.

V. RESULT AND CONCLUSION

This system is an IoT-based solution. Historical data produced by sensors and stored in the IoT database allows bike riders to make informed decision for the route. In addition, this big data can be also used by the government for better monitoring of the environment. Future works will be oriented towards studying data management and analysis for optimal application of the big data. From experimental result section, it is clear that proposed intelligent system is the best in its kind for providing a better alerts and can detect more type of miss-driving as compared to normal driving skills The main idea of this system is to minimize the road accidents which are increasing day by day by alerting and warning the driver of their ride styles and providing them the best security necessary and also send the alerts to the parents and one concerned person about the driving behavior of the driver. Stat authority can use this data for grabbing and finding the driver with these unfit driving skills and can be use to study the driving behavior or a specific area.

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VI. FUTURE SCOPE

The upcoming bike can be tightly connected to strong bandwidth and can be control with the various sensors for complete monitoring in which the all data from sensor can be send to android and can be develop a smart arena of bike which are totally secured and internet enable.

This idea can be implemented in big arena of automation industry. So that bike can be work fine and absolute. In this a secured bike mechanism also helps the people to make the driving safe and secured

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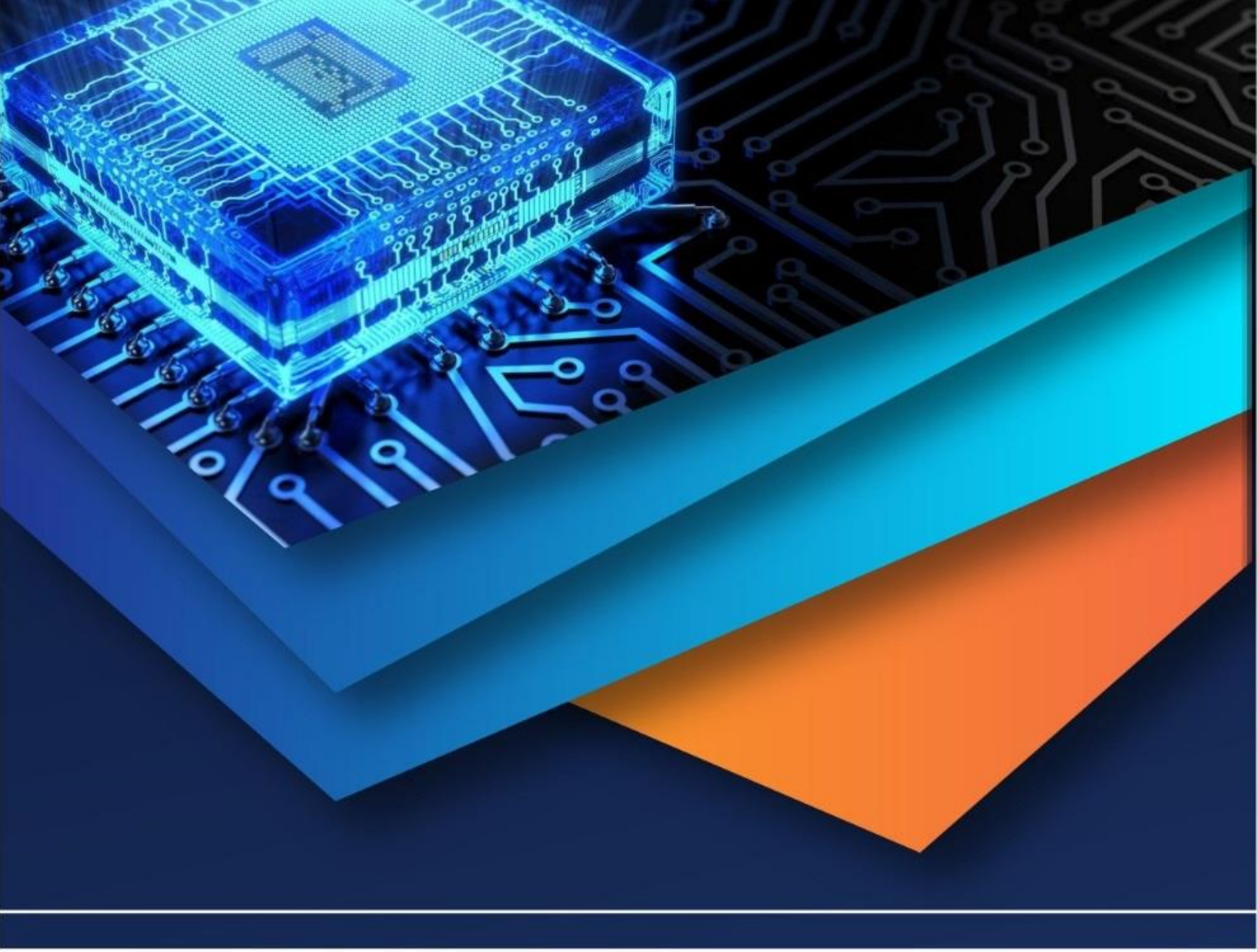

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