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SMART SYSTEM FOR VEHICLE INSURANCE

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ABSTRACT Auto insurance in India deals with the insurance covers for the loss or damage caused to the automobile or its parts due to natural and man-made calamities. Today the insurance rate for every driver, irrespective of their driving style, is the same. Thus an Intelligent System for Vehicle insurance is needed. Driving style of the driver can be obtained by using some of the vehicle parameters such as the acceleration and turning of the vehicles, etc. This is used to analyze the rashness of the driver. Hence we can allocate effective Insurance premium to the vehicle owner.

KEYWORDS : Insurance, Rash Driving Detection, Driving style

INTRODUCTION

Vehicles on roads are increasing day by day and so is the number of accidents. There were 501,423 road accidents in 2015. One of the reasons for this is Speeding/Rash Driving (41% of the total deaths). Also if the vehicle is being used or not the amount of premium paid for the insurance is same. According to the Motor Vehicle Act, 1988, Vehicle Insurance is mandatory. But the issue is that all vehicle have a similar slab for vehicle insurance irrespective of the driving style. By the use of this system it is possible to regulate the amount of rash driving by introducing incentives for driving safely.

Vehicle Insurance is mandatory and was first introduced in United Kingdom in 1930. Its primary use is to provide financial protection against physical damage or bodily injury resulting from traffic collisions and against liability that could also arise from incidents in a vehicle. The factors which affect the vehicle insurance are car information, driver's age and experience, coverage level of insurance and high voluntary excess. At present there are insurance companies that use black box systems to monitor car and its performance to evaluate the vehicle insurance.

The real time analysis of the vehicle requires a fool proof system that helps you analyze the driving style of the driver. Some of the proposed solutions are given below:

a.Rash Driving Detection System
Here a mobile phone with an app installed is placed in the vehicle. When the vehicle does dangerous maneuvers it understands it using its sensors and informs the authority.

b.Over speeding and Rash Driving Vehicle Detection System
Two Accelerometers are used to give the rapid changes in accelerations and the raw data is digitized and compared with a set value. If the changes in acceleration are more than the set value, it will transmit a message as rash driving.

PROPOSED SOLUTION

There are two parts for the implementation, hardware and software respectively. In the hardware division a microcontroller with accelerometer, gyroscope, GPS modules are used to evaluate the driving style of the vehicle user. The accelerometer can be used to get the changes in the accelerations of the vehicle. The vehicle, if driven rashly, would experience rapid changes in accelerations. The purpose of gyroscope is to measure the changes in angular changes of the vehicle. The bikes undergo high changes in angular motion if rapid turns are taken at high speed. In case of analog vehicles, the distance cannot be digitally measured or transmitted. Thus we can use the GPS module to get the real time position of the vehicle and time. Then we can use it to measure the distance travelled. All the data measured data can be sent to the cloud in real time using a GSM module.

In software implementation, the data sent to the cloud is computed in real time and the rashness in the driving is evaluated. This can be seen in the user's mobile app and the website of the insurance company in real time. Thus the insurance company can give incentives for driving sensibly.

CONCLUSION

The insurance companies should take up this product and embed this system into the vehicle for monitoring the driving style of the driver. There is a probability for cyber security in this system as the data is sent to the cloud in real time. All the data must be encrypted and made secure against threats. By this system there could be a decrease in accidents by rash driving as the drivers would have an aim to reduce the insurance premium by driving sensibly.

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