



Image processing Based Driver Sleepiness Detection System: A Survey

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Abstract: Drowsiness detection has many implications including reducing roads traffic accidents importance. Using image processing techniques is amongst the new and reliable methods in sleepy face. The present pilot study was done to investigate sleepiness and providing images of drivers' face, employing virtual-reality driving simulator. In order to detecting level of sleepiness according to the signal, information related to 25 drivers was recorded with imaging rate of 10 fps. Moreover, on average 3000 frames was analysed for each driver. The frames were investigated by transforming in grey scale space and based on the Cascade and Viola & Jones techniques and the images characteristics were extracted using Binary and Histogram methods. The MPL neural network was applied for analysing data. 70% of information related to each driver were inserted to the network of which 15% for test and 15% for validation. In the last stage the accuracy of 93% of the outputs were evaluated. The intelligent detection and usage of various criteria in long-term time frame are of the advantages of the present study, comparing to other researches. This is helpful in early detection of sleepiness and prevents the irrecoverable losses by alarming.

Keywords: Drowsiness, Driving, Image Processing.

I. INTRODUCTION

In a car safety technology, driver drowsiness detection [1-3] is very essential to prevent road accidents. Now-a-days, many people using automobiles for daily commutation, higher living standards, comfort ability, and timing constraints to reach destinations. This trend leads to high volumes of traffic in urban areas and highways. In turn, it will raise number of road accidents with several factors. Driver drowsiness could be the one reason for road accidents. One way to reduce number of accidents is early detection of driver drowsiness and alerting with an alarm. According to the NHTSA, every year around 1lakh road accidents occur because of driver drowsiness in the United States. NHTSA reported that 72,000 road accidents, 800 deaths and 44,000 injuries are occurred due to driver drowsiness. In 2017, around 1.47 lakh people are died due road accidents in India. Every year, over a Lakh people lost life due to road crashes and more than 4 times people get injured due to road accidents. In India average road accidents deaths are 1, 36,118 per year in last one decade. In 2016, 60% of people who lost their lives in road accidents were in age group of between in 18-35. In India, since 2012 more than 500 people died due accidents on Yammuna express way and more than 100 people died due to vehicle crashes on Agra-Lucknow express way. Police officials and patrolling teams on these expressways revealed that most of the accidents are happened between 2 am and 5 am due to drivers drowsy-deprived. Drivers' sleep deprivation is major reason for accidents. So, technology for driver drowsiness detection system is required to reduce road accidents. The development of this technology is a big challenge for both an industrial and research community.

II. CONCLUSION

In this way, we have implemented drowsiness detection and warning system using python. Whenever driver feels drowsiness, the eyes will close more than given time interval the alarm will play. This project will help to prevent crashes/accidents caused due to drowsiness. In the real time drowsy driver identification using eye blink detection if the parameters exceed a certain limit warning signals can be mounted on the vehicle to warn the driver of drowsiness. In this project it will detect drowsiness by observing the eye blinking pattern. With the help of Euclidean distance ratio i.e., eye blinking ratio it is easier to analyse the blinking ratio. It is more efficient technique than other system. It can be built at very chip cost. It gives more accurate result than the "drowsiness detection using Python".



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