Abstract

On-road driver’s fatigue and drowsiness is contributing more than 30%[1] of reported road accidents. Driver drowsiness can be estimated by monitoring biomedical signals, visual assessment of driver’s bio-behavior from face images, by monitoring driver's performance or by combines all above techniques. Proposed algorithm is based on live monitoring of EAR (Eye aspect Ratio) by application of Image processing. HD live video is decomposed in continues frames and facial landmarks has been detected using pre trained Neural Network based Dlib functions. Dlib functions are trained using HAAR Cascade algorithm. Intel’s Open source Image processing libraries (OPEN CV) is used as primary Image processing tool. Python Language is used as main coding language. EAR is calculated by calculating Euclidean distance between measured eye coordinates. Blink and microsleep detection mechanism is implemented by monitoring EAR against a threshold value. Blinks and drowsiness level are displayed on monitor screen with microsleep detection audio warning.

References
4. https://docs.opencv.org/trunk/d7/d8b/tutorial_py_face_detection.html
5. Eye Detection Using Morphological and Color Image Processing Tanmay Rajpathaka, Ratnesh Kumar and Eric Schwartzb
6. A Robust Algorithm for Eye Detection on Grey Intensity Face without Spectacles- JCS&T Vol. 5 No. 3

Index Terms

Computer Science Information Systems

Keywords

EAR, Microsleep, Drowsiness, OPENCV, Dlib, Python.