Year-2016

Paper name-**Drowsiness Detection System Using Heartbeat Rate in Android-based Handheld Devices**

Authors-Kai-Wei Ke, Muhammad R. Zulman, Ho-Ting Wu,Yu-Fu Huang.

Drowsiness detection is done by using the information of ECG signals to minimalize the risk of the accident. ECG signal acquired from a sensor, which then transferred via Bluetooth to android device to calculated power ratio by applying hamming window and FFT technique.

Disadvantages-This is very expensive and time consuming.

Sensor needs to be worn across the chest which is not possible all time.

Year-2017

Paper name-**Embedded based Drowsiness Detection using EEG Signals**

Authors- P Kingston Stanley,Jayaprahash T,Sibin Lal S,P Vijay Daniel.

This paper presents a physical wireless Electroencephalogram (EEG) base system for detecting drowsiness.The EEG sensor monitors the human cognitive state and provides a biofeedback to the driver while he is drowsy.This system detects the fluctuation in drivers performance withrespect to the brain activity and modulates the EEG recordings.

Disadvantages-Inability to detect symptoms like eye closure,yawning etc

Poor accuracy

Insufficient reaction time to detect drowsiness.

Year-2018

Paper-**Driver Drowsiness Detection System Based on Visual Features**

Authors-Fouzia, Roopalakshmi R, Jayantkumar A Rathod, Ashwitha S Shetty, Supriya k

Drowsiness is detected by taken eyeblink counts and activates a vibrator when they’re drowsy.This is implemented using OpenCv and raspberry pi.

Disadvantages-As human drowsiness exhibit multiple symptoms the result here will not be accurate in as this only takes eye movements.

Devices like raspberry pi is very costly.

As raspberry pi comes with powerful processor,it may starts to heat up after sometimes.

Year-2018

Paper- **Development of Drowsiness detection system based on respiration changes using Heart rate monitoring**

Authors- Shigeyuki Tateno,Xia Guan,Rui Cao,Zhaoxian Qu.

This paper is based on developing a system based on heart rate monitoring which calculates driver’s respiration by detecting electrocardiogram and then infers the driver’s drowsiness detection degree from the respiratory changes.

Disadvantages-The pulse wave sensor which is used in this system is directly contacted with skin and is influenced by driver’s actions.

Low accuracy and also there are some false negative points.

Year-2019

Paper-**Android-Based Application To Detect Drowsiness When Driving Vehicle**

Authors-Marchel T. Tombeng, Hence Kandow, Stenly I. Adam.

Drowsiness of the driver is detected by capturing the eye closure status using a sensor which is the front camera in an android phone and processing of the detected image is done by using OpenCv which uses Haar classifier.

Disadvantages-As the image is captured through camera in android device,the performance degrades in low light.

Android device which is positioned infront of the driver will be a discomfort while driving(camera needs to be seperated from the android device and better use a small external camera connected to the smartphone via wireless technology.)