

# Drowsiness detection

[Technology](#), [Cars](#)



**DROWSINESS DETECTION INTRODUCTION:** The maintenance of a state of wakefulness while performing various tasks is needed for a range of reasons varying from safety to efficient performance and beyond. In order to decrease the possibility of accidents, alertness while operating vehicles, such as automobiles or heavy machinery, must be maintained. Additionally, reading and studying require wakefulness. This project is based on an eyeglass attachable device for automobile and truck drivers for an alertness alarm signal. This eyeglass attachable alarm signal device prevents automobile and truck drivers from falling asleep, while driving. A beam of a narrow band infrared light or a beam of ultrasound is used for sensing, whether the driver's eyelids are closed or are in an open position. For alerting a drowsy driver, whose eyes have been closed for a longer time period than about one second, an electronic circuitry is activated by means of the closed eye signal from the two parallel-coupled infrared light detectors, turning on an alarm signal from a buzzer or similar, after an one second or shorter time delay. Project Summary: This project constitutes of: - An apparatus for preventing sleep by providing an eye activity detection unit and a power supply; proximately locating the eye activity detection unit to an eye of a user. - A circuit for filtering and amplifying an output of the eye activity detection unit; - Comparing a filtered and amplified output of the eye activity detection unit to a predetermined time interval, and - Creating an alarm. In the preferred embodiment, the eye activity detection unit comprises an optical sensor aligned with the eye which also creates the alarm. The eye activity detection unit may be located via use of a pair of eyeglasses or an adhesive. Comparing preferably is done by a variable

timeout circuit. The alarm is preferably generated in the following sequence: Every second the software evaluates the number of eye blinks to determine whether the driver is growing sleepy. If so, the system vibrates the seat at first. If drowsiness continues, the system sounds a tone that swells in volume until the driver becomes more alert. Also a provision will be made to design a graph of the eye shutting and opening movement. A primary advantage of this system is that it does not require obtrusive or potentially harmful contact with the user.