

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY
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A Project Report on

**“DEVELOPMENT OF A NON-INVASIVE AND REAL TIME
SYSTEM FOR ASSESSING DRIVER’S HYPO-VIGILANCE”**

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**BACHELOR OF ENGINEERING
IN
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ABSTRACT

Driver fatigue resulting from sleep deprivation is one of the important factors in the increasing number of accidents on today's road. Working in monotonous environment often causes lack of concentration or fatigue in an operator and many times such non-vigilance leads to accidents. Therefore early detection of fatigued state and Non-vigilance in vehicle operator has become essential in monotonous working environments. Such fatigued state often gets developed gradually and can be identified by certain symptoms. Other road safety problems that emanate from changes in the drivers functional state such as alcohol can be detected relatively readily by measuring their content in the air.

Fatigue, sleep deprivation and drunken driving impact all transportation operators (airline pilots, truck drivers, and railroad engineers, for example). Therefore, it is very important to monitor driver's vigilance level and issue an alarm when he is not paying enough attention to the road. As a result "passive" safety or "crash protection technology" is of a necessity on most passenger and commercial vehicles to prevent accidents before they occur. Monitoring and detecting driver hypo-vigilance could contribute significantly to improve road traffic safety.

In this project, we present a non-intrusive prototype for real time monitoring of driver vigilance and which controls the vehicle speed under driver fatigue to avoid accidents. It is based on a hardware system consisting of various sensors like eye blink sensor for detecting the driver fatigue, alcohol sensor to detect if the driver has drunk above his limits, obstacle sensor and a motor drive to control the vehicle model if the output of any of the sensors mentioned above goes high. The main controlling operation is performed by the microcontroller P89V51RD2BN.

The system has been tested in realistic driving environment at night and day driving conditions in a motorway and with different users. We show some experimental results and some conclusions about the performance of the system in this paper. This project paper also presents possible future research directions in the same field.