SMARTPHONE SENSOR APPLICATIONS FOR VISION TESTS AND SAFE DRIVING

A Project Report

Submitted by

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Under the guidance of

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in fulfillment for the award of the degree of

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IN

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CERTIFICATE

This is to certify that the project entitled "Smartphone sensor applications for Vision Tests and Safe Driving" is the bonafide work carried out by Ameyaa Biwalkar of M.Tech (I.T Engineering), MPSTME(NMIMS), Mumbai, during the III-IV semester of the academic year 2014-15, in fulfillment of the requirements for the award of the Degree of Master of Technology as per the norms prescribed by NMIMS. The project work has been assessed and found to be satisfactory.

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Dr. Vijay Raisinghani

Internal Mentor

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Ameyaa Biwalkar

ABSTRACT

Vehicle manufacturers are increasing their emphasis on safety with different driver assistance systems. Today, mobile smartphones are equipped with various sensors that can be used to record and analyze the different driving behaviors of the driver. Our application consists of a Vision Test that can help the drivers to test their vision regularly. It includes Visual Acuity test, Astigmatism Test, Duo-chrome and Ishihara Color Blindness Test. The sensors of the mobile phone are also used to collect and record the data for critical driving events. The analysis using HMM and Fuzzy logic can help to provide feedback to the drivers to avoid vehicle accidents and to stimulate safe driving practices. The vehicular sensor data can be used by various sectors such as Insurance sector, fleet owners etc. to improve assessment and communication, thus contributing to the overall traffic safety. With real time analysis, we can increase a driver's overall awareness to maximize safety.