

Title: Context-aware Man-machine Interaction for Intelligent Car Driving System

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The Green Intelligent Transportation System project is among major international efforts supporting the automotive industry in developing innovative approaches to meet increasingly stringent manufacturing requirements associated with fuel efficiency and economy, safety, performance, and environment protection. To address emerging challenges associated with the design of smart transportation systems, specifically collaborative driving and safety, leading-edge technologies are being designed and integrated to enable intelligent communication (in-vehicle and inter-vehicle modes), detect driver status (in terms of alertness and suitability to drive), obstacle detection, pre-crash warning and lane departure warning. The proposed research work, which is part of the Green ITS project main milestones on Intelligent Vehicles and Highways, consists of developing sensor platforms based on different technologies and incorporation of externally derived information with acquired sensor-based data for improved man-machine interaction. This involves using techniques and algorithms for fusion of wirelessly acquired sensory data and images. Information is obtained and/or exchanged between external and in-vehicle sensor nodes to facilitate adaptive local speed limit, traffic conditions monitoring, weather updating, among others. The proposed project aims at studying challenges associated with audio-visual data acquisition in an in-car environment and to develop effective multi-modal (audio-visual) data acquisition and recognition solutions for intelligent car interface systems.