

Cover Page

Title of submission: A User-Centered Drowsy Driver Detection and Warning System

Category of submission: Design Case Sketch

Name and full contact address (surface, fax, email) of the individual responsible for submitting and receiving inquiries about the submission: Ellen M. Ayoub, Carnegie Mellon University, 5000 Forbes Avenue. Pittsburgh, PA 15213, USA, +1 412.268.1681, ema@cs.cmu.edu

A User-Centered Drowsy Driver Detection and Warning System

Ellen M. Ayoub

Human Computer Interaction
Institute
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA 15213 USA
ema@cs.cmu.edu

Richard Grace

Robotics Institute
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA 15213 USA
rgrace@rec.ri.cmu.edu

Aaron Steinfeld

Robotics Institute
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA 15213 USA
steinfeld@cmu.edu

Abstract

This work is a culmination of years of research to develop an effective in-vehicle countermeasure to drowsy driving. Previous work resulted in an independently validated measure of drowsiness that was then incorporated into a drowsy driver prototype monitor. The goal of this project was to develop an associated drowsy driver interface that enabled effective, user-centered interactions with the underlying system.

A multidisciplinary team designed a new drowsy driver interface and introduced smart user interactions through a careful participatory design process that included both design experts and commercial motor vehicle drivers (CMVs). It is hoped that this effort and subsequent field trials will result in a reliable, smart system that convinces a driver that he/she is driving in an unsafe condition and to make a wise choice – stop and rest.

Keywords

User-Centered Design / Human-Centered Design,
Multidisciplinary Design / Interdisciplinary Design,
Product Design, User Experience, Safety, Alertness

Industry/category

Transportation, trucking, intelligent vehicle initiative

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Copyright 2003, ACM.

