
Exploring the Concept of the (Future) Mobile Office

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Abstract

This video shows a concept of a future mobile office in a semi-automated vehicle that uses augmented reality. People perform non-driving tasks in current, non-automated vehicles even though that is unsafe. Moreover, even for passengers there is limited space, it is not social, and there can be motion sickness. In future cars, technology such as augmented reality might alleviate some of these issues. Our concept shows how augmented reality can project a remote conversant onto the dashboard. Thereby, the driver can keep an occasional eye on the road while the automated vehicle drives, and might experience less motion sickness. Potentially, this concept might even be used for group calls or for group activities such as karaoke, thereby creating a social setting. We also demonstrate how integration with an intelligent assistant (through speech and gesture analysis) might save the driver from having to grab a calendar to write things down, again allowing them to focus on the road.

Author Keywords

Mobile office; automated driving; augmented reality; driver distraction

CCS Concepts

•**Human-centered computing** → **Human computer interaction (HCI); Mixed / augmented reality; Virtual reality; Gestural input;** Computer supported cooperative work;

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Introduction

Drivers occasionally perform non-driving related activities in the car [2], requiring them to interleave attention [4]. In non-automated vehicles, such activities are unsafe. Moreover, even for passengers that perform non-driving tasks, such activities might be limited by the amount of space you have to work, or by creating nausea and motion sickness.

In this video (available online here: [5]) we present a concept of how a combination of a SAE Level 3 automated vehicle [3] with augmented reality might offer a solution to some of these issues. Research suggests that if automated vehicles become more reliable, and if full attention of the human driver to the road is not needed and required for safe driving, then drivers would like to dedicate more time to work and play [7], including activities that are being done in other transportation modes such as trains [10]. In other words, our cars might turn into mobile offices [1].

Concepts of interaction with augmented reality have been tested before in driving scenarios (e.g., [9, 8]). Although in that earlier work the scope of the augmented reality technology is limited, in our video we assume that this technology involves and will create new possibilities for interaction with virtual avatars of other remote callers.

Talking through a virtual avatar, that is projected onto the dashboard will allow drivers the ability to occasionally look at the road and the car, while also having a virtual meeting. As the eyes can stay on the road, this might also minimize motion sickness, which is a critical issue for automated vehicles [6].

Taking it even further, there might even be potential for group calls, with multiple avatars being present. Such set-ups might be used for both work (e.g., group office meetings) and play (e.g., remote karaoke).

In the video we also demonstrate the concept of a smart assistant. The assistant responds to subtle gestures of the user (in the video: a hand gesture) to process relevant information from the user. The assistant then uses the information to act in a smart way. In this case: to place a meeting in the agenda of the user.

The video is intended as a playful introduction to a potential technology, and not meant to suggest that eyes-of-the-road is possible in current vehicles. Don't forget to look for our bloopers right after the credit roll ;-)

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