Abstract

This thesis is an investigation of a design space consisting of traffic-encounter interaction and mobile peer-to-peer multimedia applications of wireless ad hoc networks. The aim is to increase the appeal of traffic encounters and to break the isolation of drivers participating in them. By applying an experimental software design method we have innovated three applications illustrating this space: Hocman, Sound Pryer and Road Talk.

Hocman is an application for motor bikers, which constitute a group that does driving for leisure. They appreciate engaging in traffic-encounter interaction with other bikers. Hocman gives an aural cue to the bikers when he or she co-incides with some other. In the background Hocman also exchanges web pages that contain extended contact information. Sound Pryer provides brief joint listening experiences of music among drivers. This application can be thought of as a collaborative car stereo. With Sound Pryer one can hear what others play on their stereos and also figure out to which car that stereo belongs. Besides being a music player, it also displays the color and shape of the car providing music. Road Talk is practical tool to aid coordination around roadside-location events that may be hazardous to driving. It allows annotating voice messages and associating them to the place where they were recorded. When Road Talk units coincide in traffic-encounters the messages are exchanged. The distribution relies on wireless ad hoc networking and the spatial movement of cars.

This investigation also gave further insight into the design space itself and the relationship to related research topics. First, traffic-encounter interaction contains aspects that are to be understood as flâneuring. Such interaction gives opportunities to experience the surrounding beyond coordination reasons. Second, the applications also develop the technical topics of peer-to-peer systems in wireless ad hoc networks. Traffic-encounter interaction requires single-hop networking rather than the cumbersome and traditional multi-hop mesh principles. Third, peer-to-peer applications for this space also demand rapid peer discovery mechanism. Fourth, the design space is related to using face-to-face meeting support systems in public. Through examining human-computer interaction and privacy issues we uncover how duration of meetings has consequences for design of such technology. Fifth, these applications contribute to an interpretation of mobility which emphasis information technology artifacts, people and their combined movement.

Keywords
traffic-encounter interaction, road use, wireless mobile ad hoc networking, mobile peer-to-peer multimedia, software design, field trial, automobile flâneur, mobility