

Chapter 10

EcoRide: The Social Based System for Car Traffic Optimization

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ABSTRACT

In this chapter, the authors present a modular mobile system utilizing social and localization information in the purpose of city traffic optimization on a single person scale. The system operates based on human behaviour and presents the recommendations to reduce car traffic without overloading public transport. Since the system is meant to work with single humans, the success will depend on a person's willingness to use the recommendations. Therefore, the solution needs to be user friendly, simple to use, and mobile. That is why it is based on two popular and easy to use technologies – social websites and mobile phones.

INTRODUCTION

If there is one adjective that can be used for all modern societies, it is “mobile”. Without movement there is no life and without transportation there is no economy. The twentieth century was an era of the internal combustion engine. It also seems the twentieth first century won't be different.

We are all travelling. Almost every day when we need to get to work from home and back home from work, we use some way of transportation. If we need something, usually we travel to buy it in a mall or a supermarket. When we have vacations, most of us chose to visit foreign country rather than stay home. And finally, since most families are spread between remote locations, very often there is a need to take a long trip to visit our kin. To meet this growing demand of personal trans-

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portation a lot of new technologies were developed and many old ones were improved recently.

A significant improvement in the transportation techniques has been done thanks to the new information technologies (Kakihara, 2001). We can plan our journeys and book tickets without even moving from our desks. Computers in our vehicles not only reduce a fuel consumption and increase engines power but also tell us with road chose to get into our destination in the fastest and shortest way. Sophisticated shipping approaches allows to optimize transportations costs and time for sea (Steenken, 2001; Kim, 1997) and inland (Bush, 2003) ship transportation or air plane traffic (Brueckner, 2004; Teodorović, 1990; Yan, 1997; Gosavi, 2004). Also some other, more platform-independent solutions were proposed (Dorer, 2005). Wireless communication allows even to track shipments location in the real time (Bush, 1998) thanks to GPS navigation systems which are common, well known and broadly used.

Such a big progress creates a possibility to transport more goods and people in a shorter time and for less money. Yet one more important communication issue remains unsolved since decades – the traffic jams, which are one of the main problems in cities.

A well-known fact is that being stuck in a traffic jam significantly increase fuel consumption. In the global scale traffic jams causes a monstrous oil waste. The negative impact on human health and environment is obvious (Woodcock, 2007). Some theoretical studies were performed to reduce the traffic jams problem (Mierlo, 2004). Nevertheless, a working solution is still unknown and the problem remains unsolved.

In this chapter we will present a modular mobile system utilizing social and localization information in the purpose of city traffic optimization on a single person scale. The system operates based on human behaviour and presents the recommendations to reduce car traffic without overloading public transport. Since the system is meant to work with single humans, the success will depend on a

people willingness to use the recommendations. Therefore, the solution needs to be user friendly, simple to use and mobile. That is why it is based on two popular and easy to use technologies – social websites and mobile phones.

The General Concept

In the era of global communication most citizens of western countries poses mobile phones. Every year those mobile phones became “smarter” – can not only transmit a voice but also play music, send text and vision, display weather forecast, allow to browse internet, use GPS maps and communicate with other devices.

In the same time, social web sites like Facebook, MySpace, LinkedIn and many others became more and more popular and sophisticated. They provide a vast amount of additional functionalities and mini applications. Additionally, they are also highly integrated with various mobile devices and their operating systems which allows to browse user social contacts remotely and send information from a mobile device to a social service, process them and make public.

The concept of the system, called EcoRide, is based on those two described above newly emerged social and technological phenomenon – mobile devices and social networks. The idea is to combine the information about user social interactions and movement patterns to boost car communication. The system task is to provide simple and user friendly service for announcing and querying about transportation needs and abilities. In other words, the system is thought to encourage users to travel together in one car instead in separate vehicles.

To achieve this goal it has to provide an intuitive, informative and broadly accessible tool for transportation information sharing and fast fellow searching. The most important feature of personal transportation is flexibility and lack of hard schedules – EcoRide system, to be successful, cannot delimit those qualities.

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