# Carpooling in Commuter Traffic aided by an Internet Communication Platform

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Road traffic is a considerable contribution to pollution produced by modern industrial communities. Traffic induced by individuals commuting to or from work or other points of interest is one part of this. One way of reducing this kind of traffic is carpooling. Unfortunately this behavior is not widely accepted. Some reasons for this are a lack of information and communication problems. So information and communication systems can help people overcoming this obstacles by providing essential information about other carpoolers and initiating communication between them. In the past and present there were some approaches to such systems like the *Seattle Smart Traveler (SST)* [Tur99] or *M21* [Dai02] with varying success. For long distance travelling carpooling is an accepted way of travelling and there exist information systems like *mitfahrzentrale.de* [Eur02] with many users. But those systems (except M21) are not suited for fine scaled traffic like commuting to work. This article shows how a more sophisticated system called ORISS can be used in such circumstances.

About 14000 students and employees belong to the University of Oldenburg. Roughly 25% of them use a car for commuting and 5% are carpooling. So, carpooling is an accepted behavior but there is also some room for new carpools. ORISS is designed to meet the requirements for that scope of application. According to an environmental performance evaluation of the University of Osnabrück [VHM99] about 32% of the energy consumption is traffic related. Reducing traffic by increased carpooling has a direct advantageous impact on this. Experience with *SST* [Tur99] show that existing carpools and new ones formed by aid of an internet-based system do not compete. So an internet-based system can open up new participant groups.

ORISS allows users to specify their request by street address of source and destination place and departure/arrival time windows in a resolution of minutes. It uses GIS for geocoding street addresses and calculating trip distances and travel times. So ORISS does not rely on textual based matching of source and destination places. This means that a driver can pickup someone else even in the middle of the trip.

Oldenburg is surrounded by rural regions. Looking at existing carpools reveals that participants often use their own cars to get to central points like motorway accesses and carpool from there. So ORISS makes it possible to have several different pickup points to increase the chance of forming a carpool. ORISS has some more properties beside the ones above that will be discussed in the full paper, but one property is worth mentioning: An important criteria for forming carpools are subjective factors, like dislike of some other participant. It is essential for the acceptance of ORISS that users can exclude or prefer other users in future carpools.

We currently plan to make ORISS accessible for students and employees belonging to the university of Oldenburg. This first public operation will show, if it is possible to increase the rate of carpoolers. If this is the case ORISS may be a model for other universities or even general public access.

## References


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