



ViReFuRa

Using virtual reality to support pedestrians and cyclists



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Due to ongoing climate change, cities are increasingly focusing on finding low-energy forms of mobility. Non-motorised modes of transport should be supported and placed at the forefront of city and traffic planning efforts, since walking is the most energy-efficient form of mobility next to cycling, not to mention an extremely healthy one. But how can people be encouraged to walk and cycle more often? In order to answer this question, this project will examine the individual mobility requirements of individual people together with the various factors influencing their choice of transport. The intention is to use the knowledge gained not only to promote active mobility in a targeted manner, but also to minimise negative effects on public health and the environment.

Structure and aims of the research

For the research project, multiple variations of a street plan will be designed based on practical experience and implemented in a virtual environment. The virtual reality can simulate identical and almost freely definable (virtual) urban spaces with adaptive traffic scenarios. Using virtual reality technology, in combination with the pedestrian/cyclist simulator, the intention is to analyse influencing factors arising from urban spaces. Such factors range from differing traffic flows, traffic densities, and speeds, to different city planning layouts. In order to gather sufficient data, a user study will be conducted in the VR laboratory. Finally, appropriate traffic and city planning concepts for the promotion of sustainable and active mobility will be derived.

Current state of research

A pedestrian simulator has already been put into operation, allowing virtual urban areas to be explored on foot. A simulator for cycling has been developed with the Faculty of Computer Science. These will allow users to navigate a virtual reality on foot or by bike by physically stepping/peddling and steering. Virtual reality environments have been built for this purpose, consisting of a 3D city model with buildings and infrastructure together with a flexible traffic simulation, which can be adapted to the requirements of the specific question being investigated. The first test scenarios took place at the intersection of Frankenschnellweg/Rothenburger Strasse and the Bahnhofstrasse in Nuremberg.

PROJECT LEADER

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