

Author: Parissa Chokrai, Otto-van-Guericke University Magdeburg

Presentation Title: They See It Rollin', They Wonderin'- Self-Driving Cargo Bike Sharing To Achieve Sustainable Mobility Transition

Abstract: A quarter of the global greenhouse gas emissions is caused by traffic. Several efforts are needed to achieve a sustainable mobility transition. The improvement of public transportation is one of the most important elements. The "last mile" between the station and the travelers' destination often remains an issue. Bike sharing is one sustainable approach filling this gap but it still involves a number of problems inhibiting its usage (e.g. poor availability at certain places, necessity to return the bikes). Self-driving bikes terminate several of those problems. They can get to any point when they are needed and return themselves when the journey is completed. Introducing such self-driving bikes into road traffic raises not only a number of technical and legal questions but also notably depends on the acceptance of users and other traffic participants. The interdisciplinary research project "AuRa" develops self-driving cargo bike systems in Germany. Communication strategies of the self-driving cargo bike will be tested systematically with different groups of traffic participants in these studies. The development process of the entire service follows a user-centered approach. Further, local citizens' mobility needs will be measured and acceptance towards the entire system will be examined. Data are gathered in a multi-method approach involving focus groups, expert discussions, quantitative questionnaires and virtual reality experiments. In a first step, focus groups indicated controversial demands on the system serving as an initial point for further research. The first data of our longitudinal study was gathered via online questionnaire with N = 1116 citizens from large German cities in June 2020. In September 2020, a simulation study in a driving simulator and in a mixed-reality-lab will be carried out. Eventually, the self-driving cargo bike system will be implemented in public transport as one step towards a sustainable mobility transition. Keywords: sustainable transport, self-driving cargo bikes, mobility needs, acceptance.