SMUrTS

Battery electric buses are seen as a well-suited technology for sustainable urban transit system because it has high energy efficiency and generates zero tailpipe emissions. Therefore, conventional buses are likely to be continuously replaced by electric buses. However, the limitations of electric buses, such as range limitations, battery capacity loss and required charging times of battery, are critical issues for the service quality of the urban transit system. Therefore, it is more realistic to develop a sustainable urban transit system mixed with conventional and electric buses in a transitional period until the limitations of electric buses are overcome.

Aim/objective

SMUrTS is aiming to provide a system-level solution for the transition process from conventional to electric bus system considering the service quality, circular economy, and environmental benefit.

Approaches/methods

- Develop energy consumption and charging behavior models of electric buses considering different traffic state, weather and travel demand.
- Conduct feasibility analysis and replacement plan for the bus transit system.
- Develop a charging infrastructure placement plan.
- Develop scheduling and dispatching strategies to maintain highly reliable schedule and achieve optimal environmental benefit.
- Life-cycle cost-benefit analysis of the proposed sustainable urban transit system

Expected results and impacts

- Help the government to develop a proper policy to improve the electrification process of the public transit system.
- Provide a system-level solution for public transit system operation companies to maximize economic benefits.
- The solution for the electrified public transit system in extreme conditions, such as Megacity and Nordic climate.

SMUrTS - Sustainable mixed urban transit system with electric and conventional buses

Duration: Starting in 2019, ending in 2022 at the latest
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Budget: €877,000
Partners: Norwegian University of Science and Technology, SINTEF, Chalmers University of Technology, Beihang University – School of Transportation Science and Engineering, Lund University, Beijing Jiaotong University – School of Traffic and Transportation.

Involved countries

- China
- Norway
- Sweden

The Sustainable and Liveable Cities and Urban Areas call

The pilot call Sustainable and Liveable Cities and Urban Areas organized by JPI Urban Europe and the National Natural Science Foundation of China (NSFC), inviting interdisciplinary Sino-European consortia opened on January 31st, 2018.

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