UNIVERSITY TRANSPORTATION CENTER

RESEARCH BRIEF

IoT Platforms for Smart City Implementation in Rural and Urban Communities: A Comparative Review

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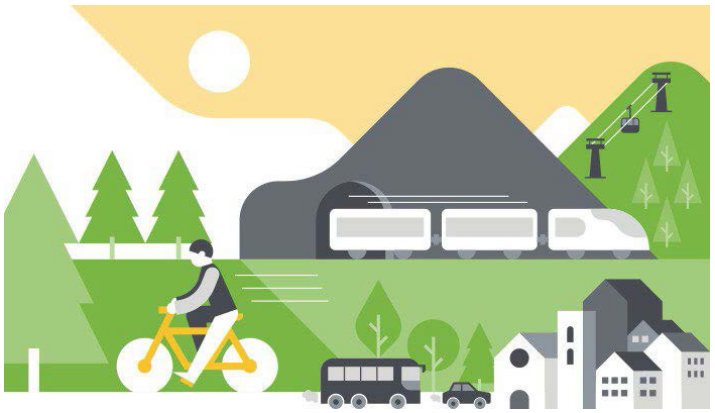
Background

Transportation agencies in urban, sub-urban, and rural communities have plans or are amid developing initial Smart City projects. The major component of these projects comprises the Internet of Things (IoT). IoT enables collecting data flows and exchange to enable the analytics needed to manage and achieve the end goals of any smart city project. Many agencies find that IoT Platform (IP) selection is very challenging compounded by limited technical resources and are struggling to implement vital concepts aimed at enabling more effective and sustainable mobility. Representative IP solutions have proprietary "vendor-specific" features that lock agencies into specific vendors' solutions. IPs developed by smaller vendors, while they come with strong customer support and a high degree of openness, face many challenges in terms of interoperability and scalability.

Research Project

The objective here is a comprehensive review to establish an improved understanding among transportation agency policy makers and professionals concerning IP operational characteristics focused strengths, weaknesses, and future directions. This will be a comparative study that evaluatesdifferent IP solutions currently available in terms of interoperability, functional capabilities, delivery models, and integration strategies toward achieving sustainable mobility. Other factors that will be examined include platform security, user experience, scalability, and suitability for urban sub-urban, and rural areas.

Ultimately, we plan to employ AI (i.e., machine learning) algorithms that can help predict and adapt traffic management strategies to better leverage such metrics as link travel time on a specific segment of large-scale traffic networks. These capabilities will be further used to develop an advanced traffic simulator (i.e., high fidelity, efficient, reliable, and location sensitive) necessary for developing future optimization algorithms.



ABOUT THE AUTHORS

The research team consisted of Rick Sheldon and Ahmed Abdel-Rahim of the University of Idaho.

ABOUT THE FUNDERS

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March 2022

FOR MORE INFORMATION

https://depts.washington.edu/pactrans/research/projects/iot-platforms-for-smart-city-implementation-in-rural-and-urban-communities-a-comparative-review/