FinEst Centre
for Smart Cities

SMART CITY CHALLENGE 2024
Solution idea for the city challenges

Max 3 pages

send to smartcity@taltech.ee by Sept 16, 2024

Solution Idea Title (max 5 words, no acronyms) - Smart Passenger Counting System

Planned pilot project duration – 24 months

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1. Which urban challenge or problem are you planning to provide a solution to?

Jūrmala's public transportation system consists of seven bus routes that cover the city and offer free rides for residents with a "Jūrmala residents' card." Current data collection methods, which rely on card validation and ticket sales, do not provide comprehensive insights into passenger movement patterns, such as boarding and alighting locations, times, and journey durations. This lack of precise data impedes the ability to optimize routes and services effectively. Addressing this challenge is crucial to enhancing public transport efficiency, reducing environmental impact, and aligning with the city's goals for smart, data-driven mobility solutions.

2. The solution you are proposing

Proposed Solution:

We propose the development and deployment of a **Smart Passenger Counting System** utilizing advanced sensors and data analytics. The system will integrate with existing ticket validation infrastructure to capture comprehensive data on passenger counts, boarding and alighting points, and travel times. This system will leverage technologies such as computer vision, infrared sensors, and real-time data processing to provide accurate and actionable insights.

How It Solves the City Challenge:

- **Comprehensive Data Collection:** Provides detailed insights into passenger flow, allowing for precise analysis of boarding and alighting patterns.
- **Route Optimization:** Enables data-driven adjustments to bus routes and schedules, enhancing efficiency and service frequency based on actual demand.
- **Privacy Compliance:** Incorporates advanced data protection measures to ensure compliance with regulations and safeguard passenger privacy.

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3. Innovation and piloting of your pilot solution.

Current Solutions and Innovations:

Existing solutions often rely on traditional ticketing data or manual counting methods, which are limited in scope and accuracy. Our solution stands out due to its integration of real-time data collection with advanced analytics and machine learning algorithms, offering a higher level of detail and accuracy in passenger counting and route optimization.

Requirements for Piloting:

- **Infrastructure:** Access to buses and existing ticket validation systems for integration.
- **Data Access:** Coordination with local transport authorities to obtain historical and real-time data for analysis.
- **Regulatory Compliance:** Ensuring alignment with data protection regulations and privacy standards.

Capabilities of the R&D Team:

Our team comprises experts in data analytics, computer vision, and transportation systems. Collaboration with TalTech will be instrumental for leveraging their expertise in advanced sensor technology and data security. Skills required from TalTech include:

- Development and integration of computer vision algorithms.
- Expertise in real-time data processing and analytics.
- Guidance on privacy and data protection compliance.

4. Expected impact of your pilot solution.

Potential Impact for City Environments:

- **Environmental Sustainability:** Improved route optimization will reduce the number of buses required and lower CO2 emissions, contributing to a greener public transportation system.
- **Resource Efficiency:** More accurate passenger data will enable better resource allocation and reduce operational costs.

Potential Impact for Citizens:

- **Enhanced Service Quality:** Passengers will experience more reliable and frequent bus services tailored to actual demand, improving overall satisfaction.
- **Convenience:** Real-time updates and optimized schedules will make public transport more convenient and user-friendly.

Potential Impact for City Governance:

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- **Data-Driven Decision Making:** The city will gain a robust dataset to inform strategic decisions, enhancing overall transport planning and policy formulation.
- **Increased Transparency:** Clear data on service performance will improve accountability and public trust in the transportation system.

Disclaimer: by submitting this form you will give the FinEst Centre for Smart Cities the right to share this idea with cities and other researchers, companies through FinEst Centre homepage. If this idea is selected, the FinEst Centre for Smart Cities has the right to implement this idea with offering you an active role in conducting the pilot. If this pilot is selected then the financing is an investment by the FinEst Centre for Smart Cities.

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