

FinEst Centre
for Smart Cities

SMART CITY CHALLENGE 2025

Solution idea for the city challenges

Max 3 pages

send to smartcity@taltech.ee by Nov 30, 2025

Solution Idea Title (max 5 words, no acronyms) – Transport Monitoring Platform Using Cameras

Planned pilot project duration – 24 months

Main contact/-s – name, e-mail, phone, university + department or company name:

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

- Which city challenge/-s proposed by the cities / counties you are targeting? NB! Please choose one from the list of urban challenges chosen for the Smart City Challenge 2025, i.e. Round 5.

“Managing seasonal and uneven flows of tourists” by Liepāja, Latvia

2. The solution you are proposing

- What is the solution you are proposing for the challenge above?
- How does it solve the city challenge you target?

The proposed solution is a mobile network data-based mobility analytics platform that aggregates anonymized signaling data from extensive mobile network infrastructure to map movement patterns in real time. The system leverages data from base stations and hundreds of thousands of mobile devices, processing this information through sophisticated anonymization and aggregation algorithms that are fully compliant with GDPR requirements and ISO/IEC 27559:2022 standards for privacy-enhancing data de-identification. The platform delivers actionable insights through intuitive visualizations and comprehensive reports covering mobility flows, temporal trends, and visitor origin analysis. Users can access these insights through a convenient self-service portal or export data in CSV format for integration with existing planning tools.

By leveraging both real-time and historical mobility data, the solution enables cities to monitor tourist flows dynamically across the city, identify peak visitation times and crowded areas, and gain deeper understanding of visitor origins and typical stay durations. This data foundation supports more effective crowd management strategies, optimized public transport routes, and evidence-based urban planning decisions, all while maintaining strict respect for individual privacy. The platform also helps municipal authorities maintain an appropriate balance between promoting tourism and preserving



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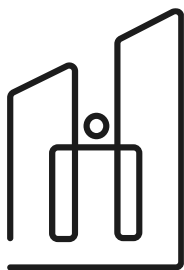


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residents' quality of life by providing data-driven insights that can inform decisions about infrastructure investments, public safety measures, and resource allocation throughout the city.

3. Innovation and piloting of your pilot solution.

- What are the best solutions available now that solve the challenge you target? (There are some solutions there for sure) How will your solution be better? What is the innovation in it?
- What do the cities need for piloting the proposed solution? How the piloting could work?
- Please provide short information about the capabilities of the research and development proposed team. Your team should have members from TalTech as well for sure. In case you do not have them yet, which skills would you need from TalTech.

Current solutions for mobility tracking typically rely on GPS-enabled applications, Wi-Fi sensor networks, or manual surveys and counting methods, all of which tend to be costly, fragmented in their data collection, and limited in geographic coverage. LMT's approach represents a significant innovation in this space because it utilizes existing mobile network infrastructure to achieve large-scale, continuous coverage without requiring additional hardware installations or user opt-in to specific applications. Privacy is ensured by design through robust anonymization and aggregation techniques applied at the data processing stage, rather than as an afterthought. Additionally, the platform incorporates predictive analytics capabilities that can forecast future mobility trends based on historical patterns. These advantages make the solution substantially more scalable, cost-efficient, and accurate compared to traditional sensor-based or app-dependent systems that capture only partial pictures of urban mobility.

For a successful pilot implementation, cities require clearly defined pilot zones that represent diverse use cases, such as Liepāja's city center and popular beach areas. Establishing baseline data for comparison purposes and defining specific key performance indicators, including metrics for crowding reduction and transport optimization, would be essential for measuring pilot success. The pilot program could run for a seasonal period to capture meaningful variations in visitor patterns, during which time the platform would provide real-time dashboards and periodic analytical reports to city planners and tourism board representatives. Throughout the pilot phase, structured feedback loops would enable continuous refinement of algorithms and visualization tools to better address local needs and priorities.

We have an internal development team to cover most of the competencies in maintaining our solution. We'd be interested in extending reasearch and adding TalTech members for the purpose of developing new flow analytics algorithms (for a wider variety of metrics for cities), enriching this data with other micromobility or payments' data to derive more detailed conclusions about toursim without identifying people. Simulations of forecasts or changes in infrastructure could be another reasearch aspect to explore.

4. Expected impact of your pilot solution.

- What is the potential impact for city environments, sustainability and citizens?



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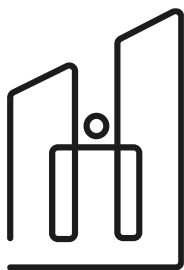


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The potential impact spans multiple dimensions of urban life and governance. For city environments, the solution enables improved urban mobility management and enhanced public safety through data-driven decision-making that responds to actual movement patterns rather than assumptions. From a sustainability perspective, the platform supports more responsible tourism management by identifying and helping reduce overcrowding, thereby minimizing environmental stress on popular destinations. Citizens benefit from an enhanced quality of life as municipal infrastructure and services become better aligned with real demand patterns throughout the day and across seasons. Over the long term, this approach allows broader smart city development, enables more efficient allocation of public resources, and facilitates better integration of tourism activities with local community life, creating a more livable and resilient urban environment.



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