

Understanding pedestrian behaviour and its influence on biodiversity in linear corridors

a time-synchronised IoT framework for multi-modal sensing in a GDPR-compliant manner

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- Pedestrian monitoring - useful
 - To develop evidence-based, inclusive redevelopment plans
 - To understand crowd dynamics, helping us to plan gatherings such as festivals, protests, and ceremonies better
 - For contact tracing, as in the case with covid-19
 - To manage pedestrian traffic better
- Rapid urbanisation – threat and opportunity for urban biodiversity
- We propose a modular approach to take advantage of linear corridors
- System of distributed, time-synchronised wirelessly-networked devices
- Conceptualised through a *privacy-by-design* approach
- Multi-modal analysis of crowded and commodious corridors
- Utilising either inherently non-privacy-intrusive sensors or exploring anonymising techniques
- Collecting contextual data such as weather conditions, transport events and environmental data such as bird population density, green cover for exhaustive study

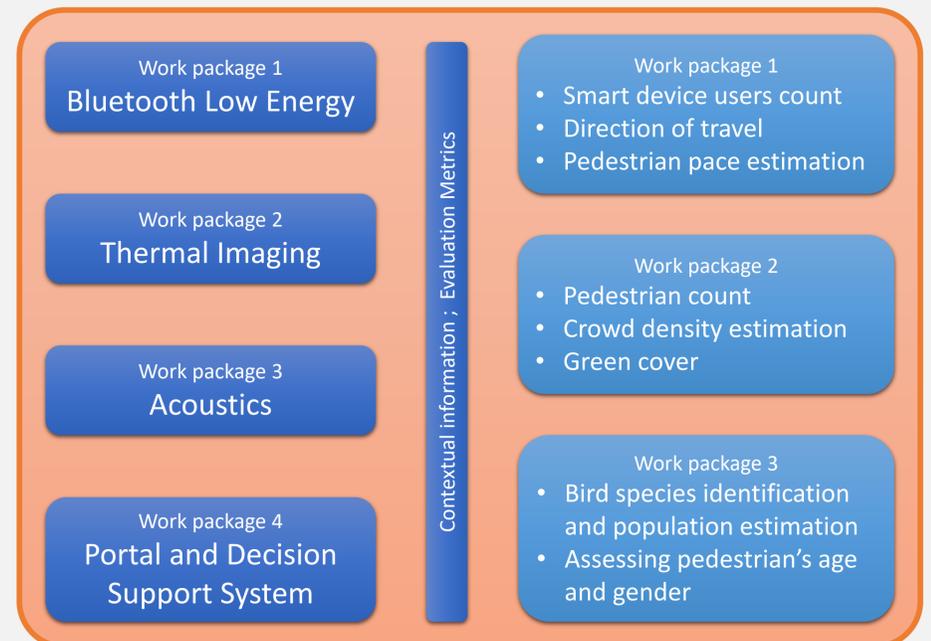


Figure 1: Modules in work packages and corresponding information to extract

Outcome

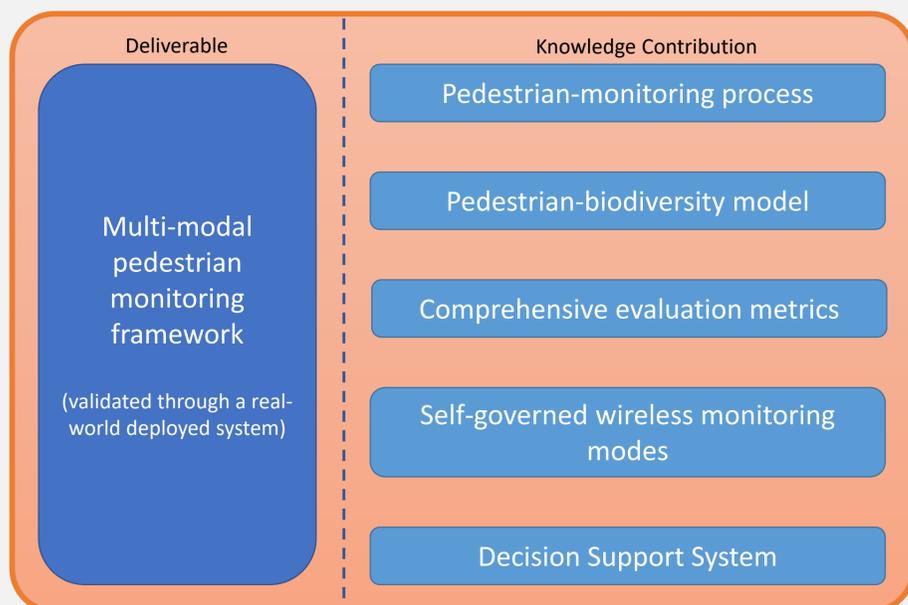


Figure 2: Expected outcomes and deliverables

Possible Stakeholders

- Local authorities & regional planners
- Transport authorities
- Environmentalists & conservation experts



Royal Canal, Westmeath, Ireland
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Expected Key Findings

- Techniques to categorise pedestrians – casual or purposeful walkers and other swift pedestrians (joggers and runners)
- Correlating with contextual information, a means to “virtually” identify a pedestrians in an *ambiguated* manner, such as, representation of pedestrians through their occurrence pattern in distributed datasets
- Novel anomaly detection mechanisms to account for, for instance nearby transport activity such as a passing bus or tram
- Identifying points of interest in a trail through observing changes in the pace of pedestrians between nodes
- Additionally, devising methods to classify locomotion mode – afoot, cycling, skate boarding, scooting, and choose an optimal method corresponding to the choice of sensing technology and context used