

PROJECT / SmartCityMules - Mobile Data Collection and Dissemination Through Vehicular Delay Tolerant Networks

SmartCityMules

Main Objective:

SmartCityMules project proposes to use vehicles as mules for data transport. SmartCityMules focuses on delay tolerant scenarios of both data collection and data dissemination. We will address the following strategies:

- * Resource management in the nodes: data differentiation will be used to decide which data to send first or delete in case of storage shortage; decide which data packets to replicate to other vehicles, and to provide adaptive sampling.
- * Efficient packet routing: dynamically determine the best vehicles to send information, taking into account the type of application and its requirements, the storage capabilities, density of vehicles, movement patterns and network performance. This is coupled with a dynamic strategy that decides which nodes cache the information, which data ought to be sent, stored or removed.
- * Improve the network resilience and robustness: use network coding to statistically increase the chances of data delivery to the destination, through a dynamic feedback multi-hop approach that selects the information to be coded, the nodes that shall code information, according to the network status and information requirements, and the interfaces to be used for coded information.

The mechanisms developed will be validated in two urban scale pilots: 1) Garbage collection and environment sensing; 2) Touristic information dissemination to city buses. Together with our partners, Veniam and Porto Municipality, we will build and test a complete system with real applications for the users and the municipality.

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Team: [Susana Isabel Barreto de Miranda Sargento](#), [Ana Cristina Costa Aguiar](#), Lucas Guardalben, [Nuno Miguel Abreu Luís](#), [Carlos Roberto Senna](#)



Groups: [Network Architectures and Protocols – Av, Networked Systems – Po](#)

Local Coordinator: [Susana Isabel Barreto de Miranda Sargento](#)