

Remote Sensing through a Vehicular Network

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Ciência 2009, Lisbon, July 29nd

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- ▶ Vehicles are being extended with communication capabilities.

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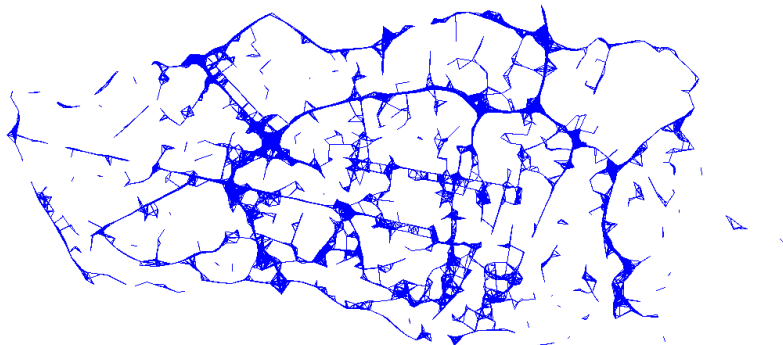
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- ▶ Real-time Vehicular Sensing.
- ▶ Similar to a Satellite Infrastructure, with complex vehicular orbits and more local sensing capabilities.

Snapshot of a VANET in Porto at 33% penetration rate



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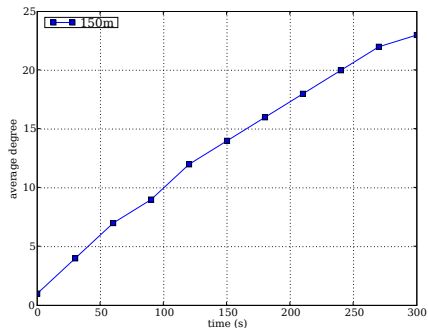
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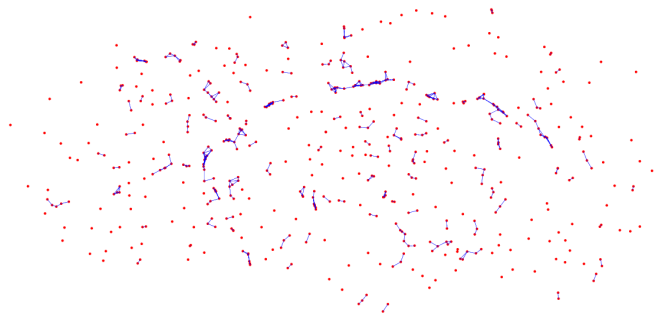
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 - ▶ Increased connectivity in delay-tolerant applications.

Mobility and Connectivity

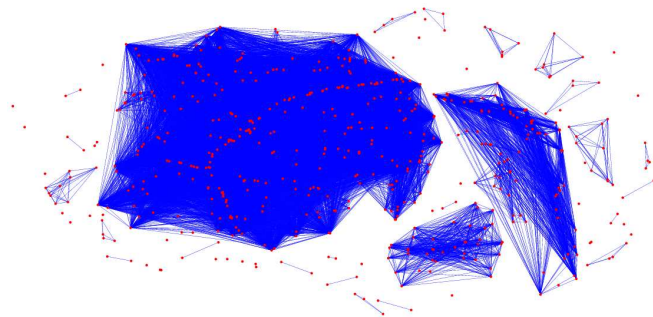
- ▶ In delay-tolerant applications, node mobility is able to increase connectivity (traffic information systems, email or SMS delivery).



Instant Connectivity of a 500 nodes VANET in Porto



Connectivity after 30s of a 500 nodes VANET in Porto



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 - ▶ Self-organizing in the most adverse situations.

Examples of Distributed Vehicular Sensing

- ▶ Constructing and updating road maps: *“Mining GPS-Traces for Automatic Extraction of the Road Network”* - Fernanda L. Lima and Michel Ferreira - 6th International Symposium on Mobile Mapping Technology, 2009, MMT'09.

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- ▶ *“Stereoscopic Aerial Photography: An Alternative to Model Based Mobility Approaches”* - Michel Ferreira, Hugo Conceição, Ricardo Fernandes and Ozan K. Tonguz - 2009 ACM Mobicom VANET, VANET'09.

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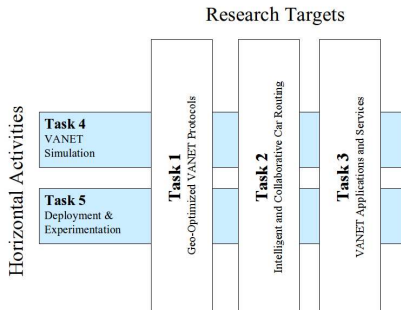
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- ▶ DRIVE-IN industrial partner is NDrive, a portuguese player in the international market of portable navigation systems.



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- ▶ A testbed of 500 vehicles in Porto will start being deployed already this year.



<http://drive-in.cmuportugal.org>

