MobiWise: from mobile sensing to mobility advising

Miguel Luís (nmal@av.it.pt)
Instituto de Telecomunicações - Aveiro
Project Details

Period
Jan 2017 – Dec 2019

Consortium
IT - Instituto de Telecomunicações
Network Architectures and Protocols – IT-Aveiro
Radio Systems – IT-Aveiro
Networked Systems – IT-Porto
CISUC – The Centre for Informatics and Systems of the University of Coimbra
CMUC – The Centre for Mathematics of the University of Coimbra
TEMA – Centre for Mechanical Technology and Automation, University of Aveiro
Main Objective:

“MobiWise will build a (5G) platform that encompasses the access infrastructure filled with sensors, people and vehicles, to improve mobility in the cities, both for commuters and for tourists. The project will connect any sensor, person and vehicle, and will use all possible information to improve the user mobility, through a complete network and services platform for an Internet of Things real deployment in a smart city.”
Vehicular communications: why?

V2V connectivity

vs. cellular data (V2I)
- Lower cost
- Lower latency

Ubiquitous connectivity
Not from scratch
Vehicular networks: how?

Fixed Infrastructure

IEEE 802.11p Access Network
RSUs

IEEE 802.11g/n Access Points

Cellular Access Network

Internet

Ad-Hoc

Mobile Infrastructure

IEEE 802.11p
Access Network

IEEE 802.11g/n
Access Points
Vehicular communications: what for?
Sensing the city through vehicular networks
Sensing the city through vehicular networks
Smart Cities, Internet of Things and Mobility

- Self-Driving Cars
- Emergency Communication
- Large Scale Events
- Aeronautic Communication
- M2M Communication
- Waste Management
- Real-time Information of Transportation
- Smart Metering
- Remote Sensing and Control
- Interconnecting Things, Lighting
- Broadband Communication
- Transportation Management (Public, Electric)
- Vehicles Telematics
- B2B Communication
- Smart Biking
- Self-Intersections
- Sports
- Smart Agriculture/Park
- Smart Parking
- Smart Tourism
- Health
Mobile and enabling technologies

1. Home area networks
   - WiFi
   - DECT
   - X10
   - ZigBee
   - Bluetooth
   - NFC
   - RFID
   - LoWPAN
   - KNX
   - LonWorks
   - enOcean

2. Local area networks
   - M-Bus
   - wavenis open standard alliance
   - DECT
   - G3-PLC Alliance

3. Wide area networks
   - GPRS
   - SIGFOX
   - LoRa
   - 3G 4G
   - DSRC
   - WEIGHTLESS
   - GreenPHY
   - NFC
   - RFID
   - Wi-Fi
   - BT Sport

11º Congresso Comité Português da URSI – Novas Tecnologias para a Mobilidade
Result: a multi-technology mobile network
Sensing the city – MobiWise & Aveiro Open Lab