ICT Platforms for electromobility services in European cities

2013 ANNUAL POLIS CONFERENCE – Brussels | 5 December 2013
Guido Di Pasquale, PluService.NET
European Pilots on ICT for Electromobility

Co-financed by the European Commission under the CIP-PSP program

- **Start date:** 1 January 2012
- **Duration:** 3 Years
- **European Community funding:** 9.2 M€
- **Total budget:** 18.4 M€
- **Total number of project partners:** 65
smartCEM concept
(smart Connected Electro Mobility)

- **What:** To apply ICT services to existing electro-mobility systems in Europe.
- **Why:** To optimise EV performance, increase public awareness and acceptance. This should enhance the confidence of the end user towards electro-mobility concept.
- **How:** Adapting existing services to electro-mobility needs and combining those with existing pilot requirements.
smartCEM services

**EV-sharing management**
- Improve the sharing management to increase user acceptance

**EV-trip management**
- Making the trip more efficient through journey optimization

**EV-charging station management**
- Connecting infrastructure to smartCEM services

**Web and mobile Apps**

**EV-efficient driving**
- Making driving style more efficient taking into account the EV requirements

**EV-navigation**
- Improving routing and guidance specific to electric vehicles
smartCEM Portal and Applications

- European End-Users can access to the smartCEM services through a single mobile portal App (LBS).
- Maintain separate the business processes behind each service in each Pilot
- A set of applications, services, data and software components shared inside the pilot sites of the project
- Standards used: OCPP, IEC 61851-1, IEC 62196, SAEJ1772, 3G, Bluetooth, IEEE 802.11, OGC-WFS, OSM, GTFS, SOAP, REST
Barcelona

- Fleet of available e-scooters: 50
- Embedded EV-navigation
- Efficient driving - Post Trip Analysis
- Built-in data loggers default data acquisition

- EV-sharing 2.0 trips do not need to start and end at charging stations.
- It makes an intelligent matching of offer and demand of scooters and applies pricing incentives in order to optimise the fleet distribution.
- Operational barriers has been overcome by re-designing the scooter and adapting the management module under a battery swapping scheme.
Gipuzkoa and San Sebastian

- EV-sharing in Gipuzkoa County managed by Web and Android based Applications for Booking & Payment
- EV-navigation to reach charging stations
- Multimodal Travel Planner: PT solutions are combined with EV sharing services
- On-board Efficient driving application for Hybrid Buses
- Efficient driving - Post Trip Analysis
Newcastle

- Charge Your Car (CYC) is the UK’s pay-as-you-go recharging network for electric vehicles, now expanding into a national UK network.
- It enables station owners to connect to the network, making their posts visible to all EV drivers via the CYC live status map.
- CYC operate billing and clearing among station owners
- App that lets EV drivers find and use charging stations.

EV-trip management: in the long run it enables EVs and the charge station infrastructure as a mode of transport to be considered for a journey in its own right.

A fleet of EVs is equipped with a hw unit which can be installed in any car to access on-board vehicle data and transmit it via Bluetooth to a smart phone or tablet.
Reggio Emilia

The employees of the Municipality of Reggio Emilia have access to an EV sharing system which they can use for work-related activities.

- EV real time monitoring
- Real-time on trip advice to improve driving style.
- The warning messages are obtained by integrating the EV-eco-driving current data with the current vehicle signals.
- Transfer relevant and statistically arranged information to the navigation system (i.e. Current SOC, speed, vehicle state, battery voltage and current etc.).
Common Applications and tools

Navigation
- Display reachable range as a polygon
- Display current status of electricity consumption
- Simulation of potential situations (like range if the battery is only half capacity)
- EV-Charging Station Assistant
- EV-Eco-Driving routes & hints
- EV-Key-Value store interface

CS manager
- The CS manager common component interacts with the EV-navigation, in order to provide charging station details: location, IDs, name, etc.

EV data & Efficient driving
- A public web page where end users can review their trip summary in terms of acceleration and deceleration profile, idling time and energy regeneration.
- Data are collected via the hardware and software installed in on board data loggers: CANbus/OBD2 port.
- An hardware unit to connect EV and smartphones through Bluetooth.
Conclusions

- ICT Services have been adapted to the smartCEM architecture
- Common App to access the services
- Common components and Specific services in 4 Pilot sites
- Some of the services already launched in the market (Motit, CYC, Navigator, Trip planning)
- Input to the EU Electromobility Interoperability-Innovation Group for the development, publication, sharing and promotion of ICT standards
Thank you!

Guido Di Pasquale
Project Manager
g.dipasquale@pluservice.net
www.pluservice.net
www.smartcem-project.eu