Information and Communication Technology Research Opportunities in Dynamic Charging for Electric Vehicle

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Dynamic Charging of Electric Vehicle

• Electro- Mobility
  – Can decrease co2 emission
  – EV can not be used for longue distance

• Obstacles
  – Charging time
  – Battery price

• A solution
  – On-route charging
Dynamic Charging of Electric Vehicle
User accounts, booking and billing

• Drivers needs to create an account so the charging infrastructure allows them to charge
• The user account allows the driver to charge from different operators
• Charging station relies on booking to satisfy energy demand
• Billing will take in consideration the difference between the energy effectively received by the electric vehicle and the energy delivered by the charging station.
Dynamic routing for EVs

• Itinerary choice
• Charging infrastructure location and availability
• Warning in case of low charge
• Charging location choice
• Saving preferences
EV Identification

• Speed identification an authorization for dynamic charging should be much faster than for static charging

• Traffic signals and barriers can control the access to the charging lane. Enforcement can be detected by a camera

• ANPR and DSRC are mature to identify an electric vehicle
Driver assistance while charging

• Advanced driver Assistance System ADAS can help the driver to stay in his lane while charging
  – Adaptive Cruise Control
  – Intelligent Speed Adaptation
  – Lane Departure warning

• These are safety applications and can be useful for on-road charging vehicles.
Conclusions

• ICT solutions are essential for on-road charging
• The state of art of ICT solutions meets some of the requirements of dynamic charging
Thank you

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