



Workshop on automation pilots on public roads in Europe

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National strategic plans on Automated Driving

- Automated Driving is a thematic area and a technology considered in the **ITS National Architecture** (November 2015) and the **ITS National Strategy** (March 2015) docs
- AD is contributing to the **national strategic goals** on safety, efficiency, sustainability in transport of **both people and goods** and creation of new business and job opportunities
- AD as an element for the future **public transport** planning (in connection with existing transport means)
- AD connection with **electromobility**
- AD as enabler for **intermodality** and for the evolvement of **smart cities**

Driverless buses ~~in~~ the city of Trikala

Six automated **buses** (capacity 11 passengers) in an urban loop route of 2.4 km with nine stops

Fully automated and **driverless** driving

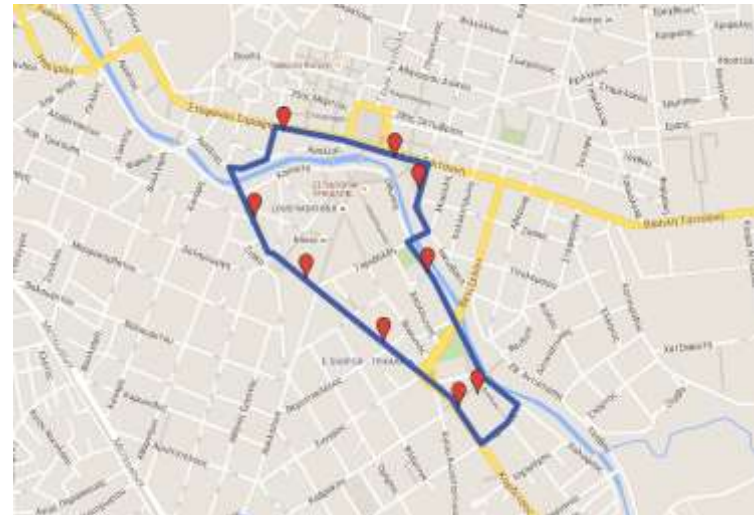
Emergency **remote** control from a traffic mng center

Daily operation from November 2015 until the end of February 2016

1,490 trips

12,138 passengers

In the framework of CityMobil 2 Project



Objectives of the pilots

Estimate the **socio-economic** impacts from automated public buses

Asses the **public acceptance** and the maturity of the system

Evaluate the **potential** for automated transport systems in urban environments

Evaluate the **complementarity** and synergies with the existing transport network

Verify the technical **functionality** of the buses in urban environments

Bring together the needed **stakeholders**

Type of infrastructure

Dedicated (but not segregated) bus lane

Central depot and control room for the automated buses

Smart traffic lights, giving priority to automated buses

Changes in parking places and in taxi stops, along the route

Road signs and road markings along the route

WiFi access points and fiber optics network along the route

Fully automated and driverless buses(retrofitted)



Legal arrangements

A **new law** has passed with changes in the Traffic Code, allowing the circulation of driverless urban buses for research testing and demonstrating purposes, in open public roads.

Supported by a **Ministerial Decree** specifying details about traffic signaling and traffic rules, type approval of such vehicles.

Main requirements

- Approval by the Municipal Council and the Local Police
- Capability of remote control and emergency stop of the vehicle
- Support from a recognized public research center that will assess technical details and safety

Challenges and lessons learned

- Long and complex procedure to get the necessary legal provisions – totally new area
- Many stakeholders that need to come together and agree
- Support by the public, local authorities and industry (including insurance sector) is a must
- Type approval and certification is a key issue
- Reliability, stability and fall back solutions are issues for consideration
- Safety, security and privacy were major considerations

Challenges and lessons learned (2/2)

- The driverless buses were well accepted by their passengers and by the citizens (during and mainly) after the demonstrations
- Public awareness is of outmost importance if we want to see such systems in our roads
- Professional drivers support is needed
- Road users rarely behave as expected

Enablers and drivers

Proactive consideration of automated vehicles in SUMP by public authorities and urban planning operators

Investments both from the public and mainly the private sector are needed

Standardisation but also new **certification** and type approval is a pre requisite

Commitment of all key actors

Public **awareness** and support

Incentives are needed both for transport operators but also for the general public to use AD (eg insurance policies)

Technology **maturity** for the open non segregated road, mixed traffic scenarios is needed

Integration with other key concepts like electromobility, MaaS, IoT etc.

Need for extensive **CBAs** and new **business** models

Areas of cooperation

- Harmonisation of **national ITS action plans** regarding automated driving (common Roadmap or Masterplan)
- Share **knowledge** and exchange of **best practices** through established testbeds
- Share **data** – open data initiatives
- Creation of a common and proven **verification** methodology
- **Cross-border** testing
- **Certification** procedures defined at EU level
- **Cyber security** and **privacy** mechanisms
- **Legal framework:** During Greek EU presidency in 2014 within the framework of CityMobil2 project 12 EU Ministers of Transport gathered and discussed the legal framework and initial adaptations for circulation of automated vehicles on public roads



Thank you for your attention

For questions or additional info:

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