



 **UTOPILOT**

AUTOminated driving **P**rogressed by the
Internet **O**f **T**hings



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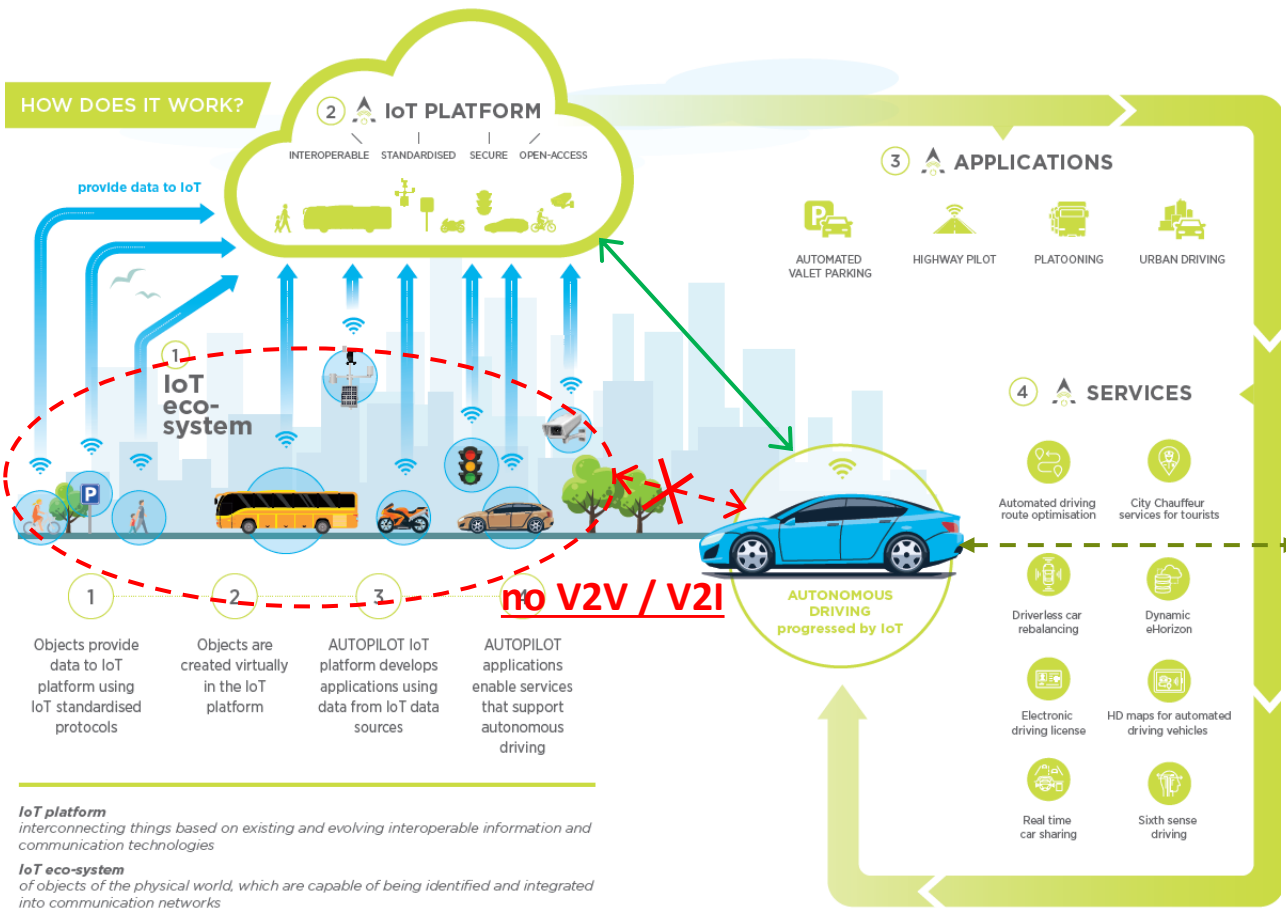


Merging automotive and IoT technologies to move forwards Automated Driving towards a new dimension



- Enhance the driving environment perception with “IoT enabled” sensors
- Foster innovation in automotive, IoT and mobility services
- Contribute to the development of IoT Standardisation and eco-system
- Use and evaluate advanced V2X connectivity technologies
- Involve Users, Public Services, Business Players to assess the IoT socio-economic benefits for Mobility

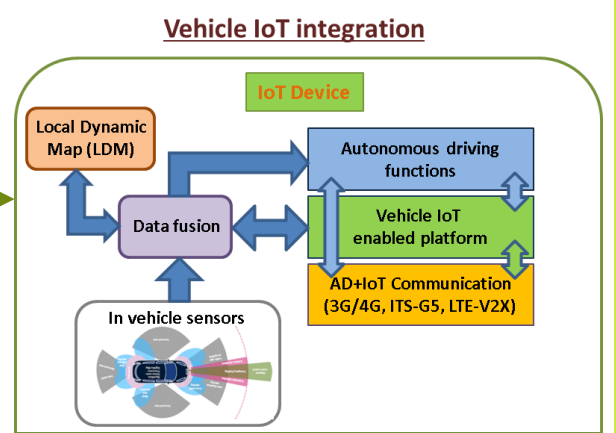
HOW DOES IT WORK?



IoT platform
interconnecting things based on existing and evolving interoperable information and communication technologies

IoT eco-system
of objects of the physical world, which are capable of being identified and integrated into communication networks

IOT to transform automated driving



IoT benefit for Automated Mobility

- Connectivity agnostic significantly increasing the range of sensors
- Not only transmitting sensor data but providing real time information and notifications
 - Maintain virtual representation of objects and create new objects (e.g. traffic jam)
 - Context management – semantics – analytics
 - IoT layer = service platform
- Easy cross domain service integration – aggregation / federations
 - Cooperation Smart Cities / Smart Energy / Smart Mobility



IoT Devices

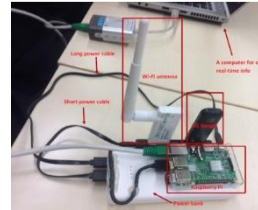
- > 15 types of IoT devices are implemented in the 5 EU pilot sites
- IoT devices adapted to AD function requirements in terms of latency, availability and range
- IoT devices support autonomous driving functions in all pilot sites to increase AD level 3 to 4.



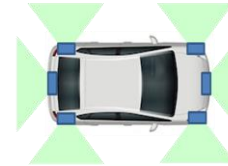
DLR Micro Aerial Vehicle PS: Nederland



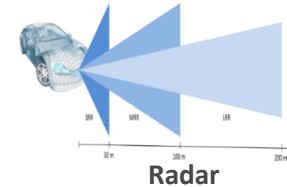
TASS RSU Camera PS: Nederland Camera PS: Finland



NEC crowd detector device PS: Nederland



Lidar PS: Nederland



Radar



Smart traffic light detector PS: Italy



BLE beacon used for PoI notification PS: France



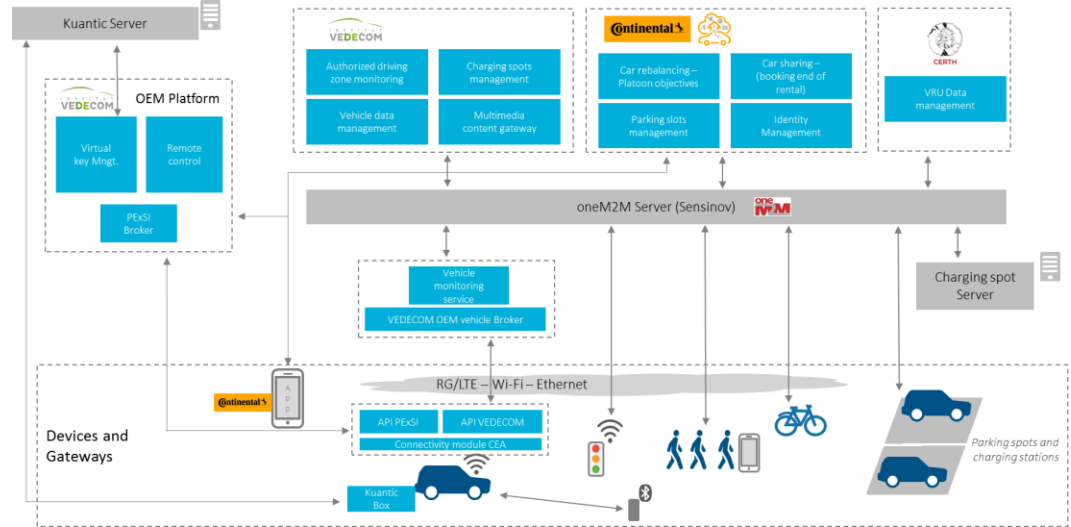
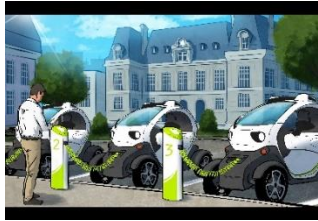
Smart Camera PS: Spain



Parking sensor LoRaWAN PS: France

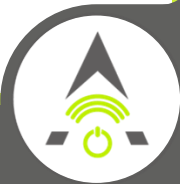
Versailles pilot site

VRU detection – Car sharing/parking - Platooning



AUTOPILOT future perspective with 5G

- Current use cases (AUTOPILOT)
 - Enhance driving environment perception for the AD DDT and RT HD maps update
 - Provide SaaS/PaaS for mobility (OEM vehicle management platform or MaaS)
- Evolutions with 5G
 - **eMMB**: use of realtime video streaming and all in-vehicle sensors from vehicle, Teleoperation, precise localisation
 - **mMTC**: massive sensor deployment improving environment perception
 - **uRLLC + MEC**: use of IoT for real time dynamic driving tasks
 - **5G CORE**: IoT service platform fully integrated at Mobile Edge



- CAD Pilot in the frame of EC-funded **5 Large Scale Pilots on IoT**
- 3 Years Innovation Action: 01/01/2017 – 31/12/2019
- 44 beneficiaries – coordinator: Francois Fischer, ERTICO
- Project costs: 25 m€ - EU contribution: 20 m€
- European Commission: DG CONNECT unit E.4 – IoT / H.2 Smart Mobility & living / A.1 Robotics & Artificial Intelligence
- Cross coordinated and supported by 2 CSA:

➤ CREATE-IoT (create-iot.eu)



➤ U4IoT (www.u4iot.eu)





Thank you

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