1ST CORAI SUMMIT ON THE FUTURE OF AUTONOMOUS MOBILITY

BRUSSELS, 9/10/2019

MASA

Modena Automotiva Smart Area

Francesco Guaraldi

University of Modena and Reggio Emilia – HiPeRT Lab

KEY FEATURES OF THE PROJECT

- The potential of the living lab in the region
- Stakeholders
- Objectives
- Investment opportunities
- Possible transnational cooperation for innovation

Emilia Romagna Motor Valley

- Heart of one of Europe's wealthiest and most dynamic regions, which is world-renowned for its production of mechanical parts, engines, sports cars as well as for its agro-food sector, ceramic tiles and manufacturing industries.

- Bologna, Ferrara, Modena and Reggio Emilia and Parma, cities with the highest quality of living standards in Italy, considered important cities of art and culture.

Emilia

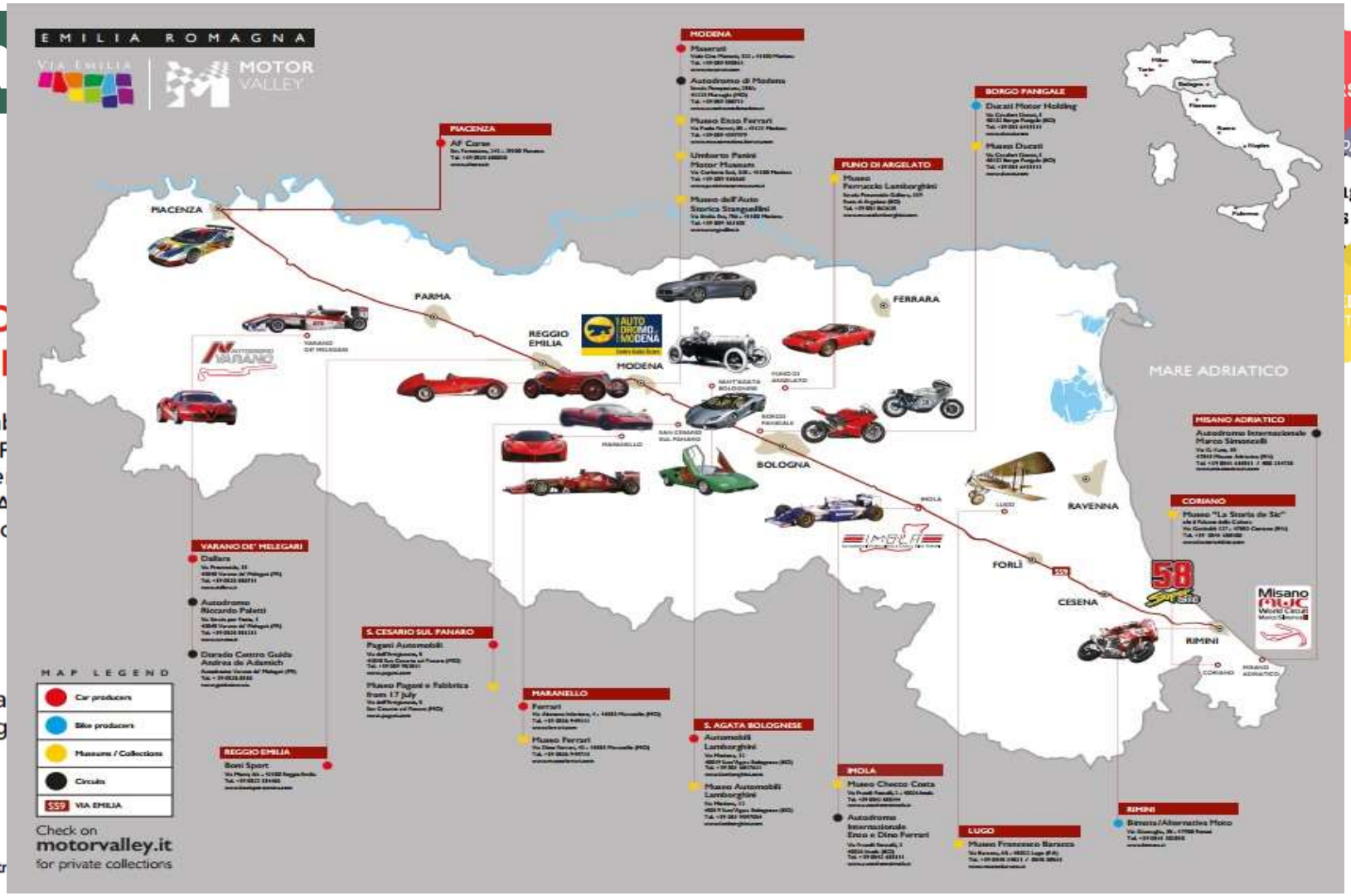
TOP AUTO COMPANI

Automobili Lamb
Dallara, Ducati, F
HPE Coxa, Mase
Marelli, Pagani A
Scuderia Toro Ro

SKILLS

High Concentra
Mechanical Eng

Source: Ministero dell'Istr



University of Modena and Reggio Emilia

UNIMORE
UNIVERSITÀ DEGLI STUDI DI MODENA E REGGIO EMILIA

- One of the best universities in Italy for teaching and research:
  - No. 1 among Italian Universities in engineering
  - programmes in 2017 (source: Censis)
  - No. 4 among Italian Laurea Magistrale programs
  - (Education Around 2018)
  - No. 4 among Italian large Universities, more than
  - 20.000 students, in 2017 (source: Censis)
- Large enough to offer all the facilities one would expect from a major university
- Small enough to retain a personal and friendly environment
- 14 Departments
  - offering a wide range of degree programmes at
  - undergraduate level, right up to doctoral studies in
  - most disciplinary areas and research expertise and skill

MASA

Modena automotive smart area

The World is a Small City

MASERATI

UNIVERSITAS STUDIORUM MUTINENSIS ET REGIENSIS 1175

UNIMORE
UNIVERSITÀ DEGLI STUDI DI MODENA E REGGIO EMILIA

Comune di Modena

Endorsed by

Ministero delle Infrastrutture e dei Trasporti

RegioneEmilia-Romagna

FONDAZIONE Cassa di Risparmio di Modena

Partners

AD CONSULTING

DANISI ENGINEERING

Addfor

ALTRAN

AVL

AXIS COMMUNICATIONS

eNERGICA

GENERALI

AUTOMOBILE CLUB MODENA

here

Hewlett Packard Enterprise

LIFETOUCH

MSC Software

nebbiolotechnologies
fog computing pioneers

AUTODROMO di MODENA
Centro Guida Sicura

NEXT2U
MACHINE SENSING EMOTIONS

OCTO

OMOOVE

RE:Lab

WIND

WORLD ROAD ASSOCIATION
MONDIALE DE LA ROUTE

DEMOCENTER

WHAT IS MASA?

MASA is a living lab created to develop, test and validate automated and connected vehicles.

MASA IS COMPOSED BY:

Simulator | **Proving ground** | **Public road**

MASA consists in a public-private partnership that offers OEMs, tier 1 and tier 2 companies a complete environment to develop and validate solutions for Cooperative Connected Automated Mobility. Through its facilities,

MASA OFFERS 3 KIND OF SERVICES:

Advanced training | **Research & product development** | **Support for experimental test implementation**

MASA facilities

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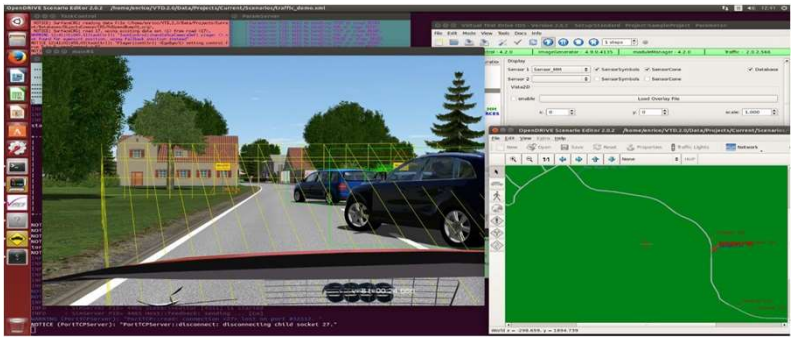
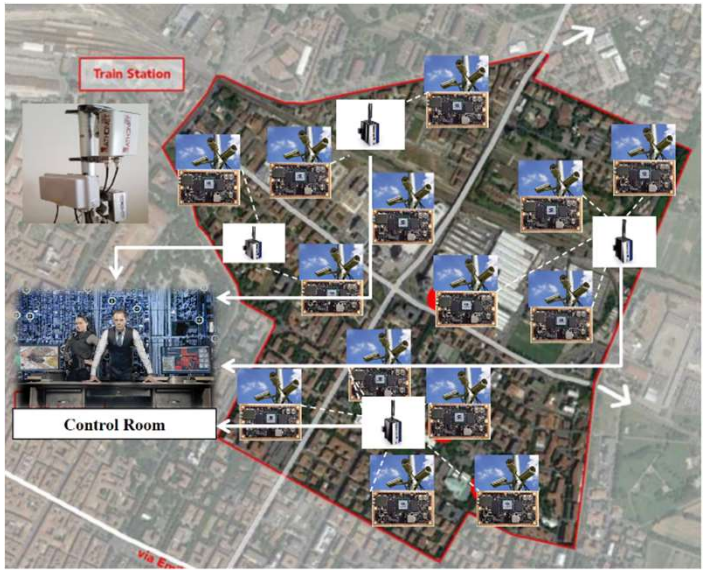




Public road & Fog nodes

Simulation &Validation
(Training of people and device)

Proving ground & Testing

A Cluster of European projects

CambiaMO

Governo Italiano
Presidenza del Consiglio dei Ministri

CLASS

5G CARMEN

MASA
MODENA AUTOMOTIVE SMART AREA
The World is a SmallCity

PRYSTINE

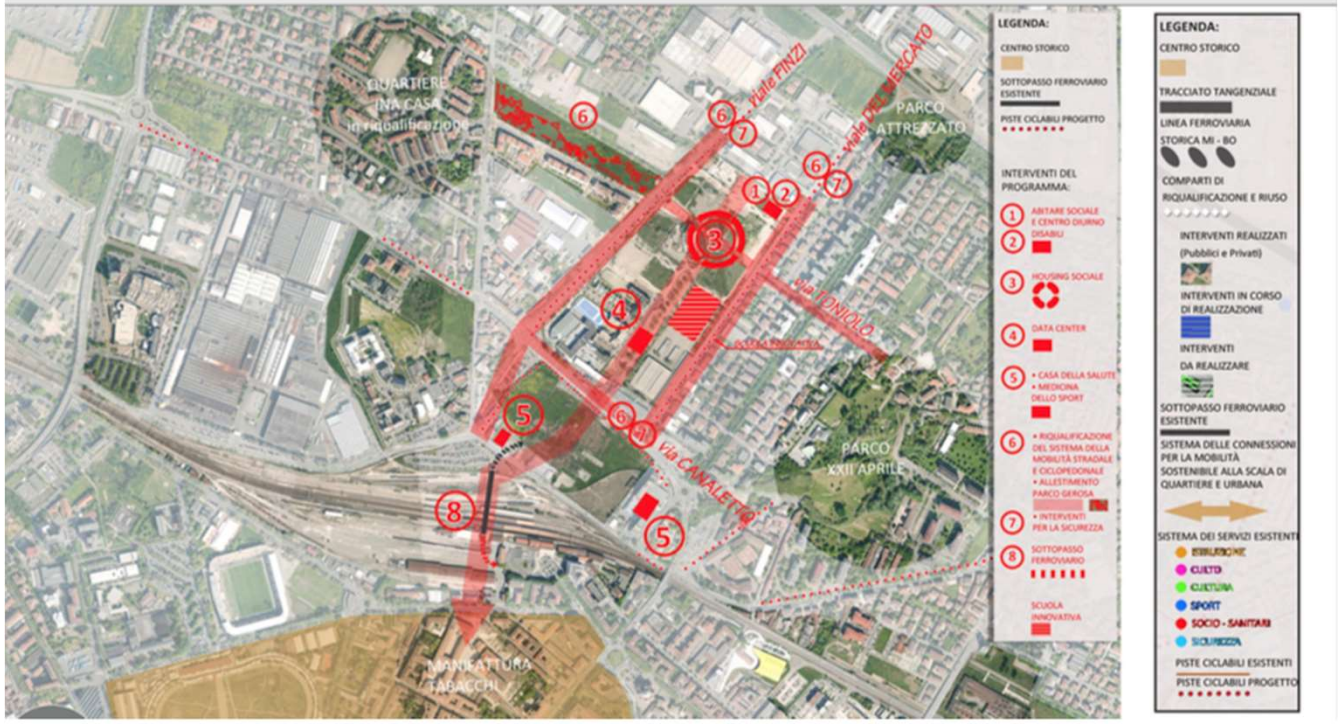
NEWCONTROL

SECREDAS
Digital Privacy
Safety & Security

Progetto Periferie Rigenerazione e Innovazione

A VERY REPRESENTATIVE AREA

... with schools, green areas, different mobility situations, highway ...



Comune di Modena

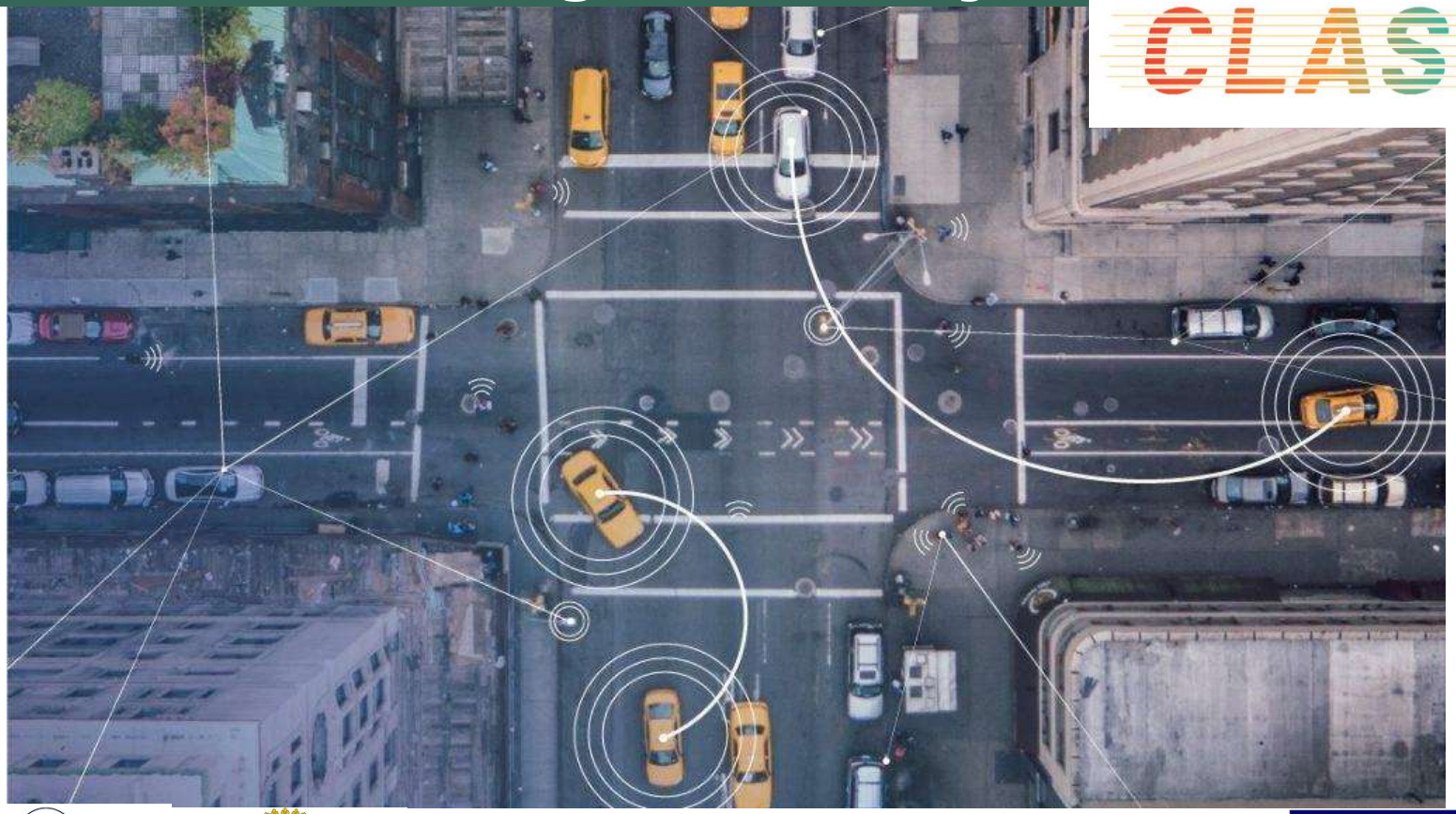
CambiaMo

Governo Italiano
Presidenza del Consiglio dei Ministri

Funding 18M euro
Italian Goverment

CLASS: Edge Cloud Computation: A Highly Distributed Software Architecture for Big Data Analytics

Duration: 36 month (2018-2020)
Budget: 3.900.803,00 European Funding: 100%



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Comune di Modena

Barcelona Supercomputing Center
Centro Nacional de Supercomp

IBM

Atos

PRYSTINE: Programmable Systems for Intelligence in Automobile

PRYSTINE

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MASERATI

Daitek

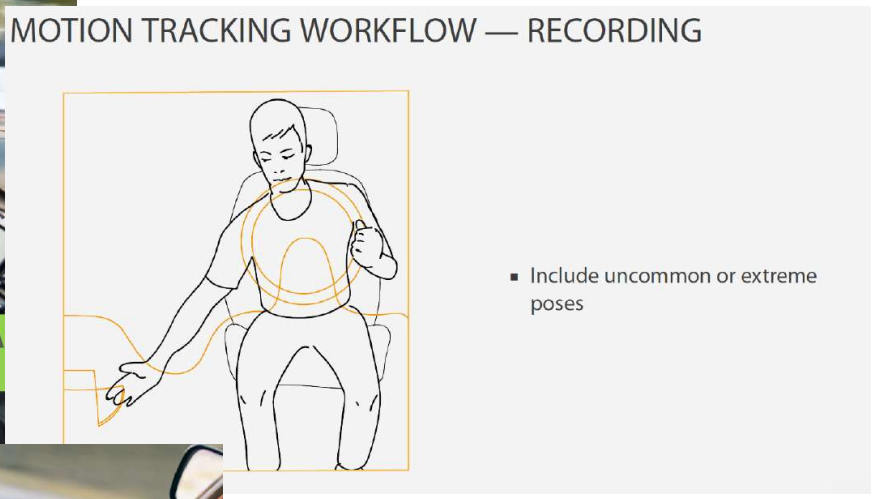
POLITECNICO DI TORINO

RE:Lab

FCA
FIAT CHRYSLER AUTOMOBILES

i&m
Ideas&Motion

Infineon



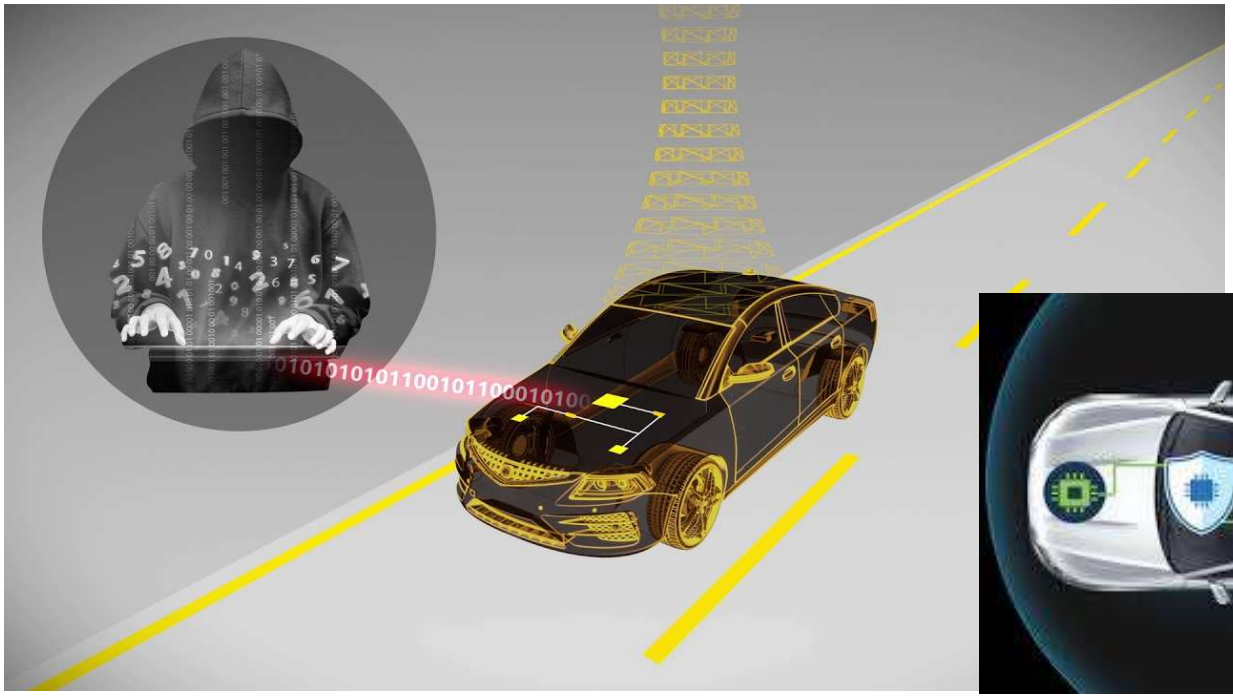
In driver monitoring &co-driving strategies

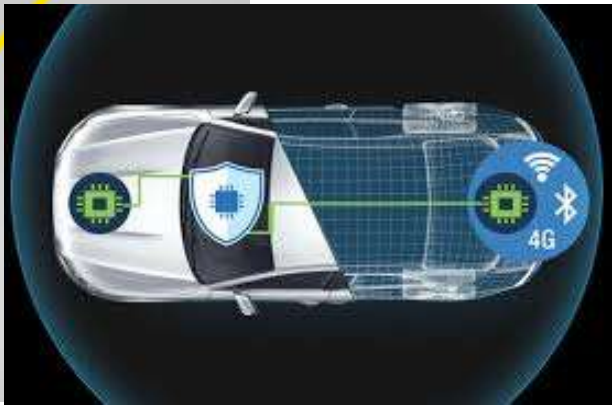
Duration: 36 month (2018.2021)
Budget ITA: 2.294.000,00
European Funding: 35%
National Funding: 30%

SECREDAS - Cyber Security for Cross Domain Reliable Dependable Automated Systems

Duration: 36 month (2018.2021)
Budget ITA: 2.517.796,00
European Funding: 35%
National Funding: 30%

Develop “trust”-building components and (sub)systems Answer to urgent safety, security and privacy concerns





5G CARMEN- 5G for Connected and Automated Road Mobility in the European Union

Duration: 36 month (2018-2022)
Budget EU: 14.960.887,00
European Funding: 100%

Enabling technologies for a 5G corridor including the network-embedded cloud, the NR, and the new frequency planning

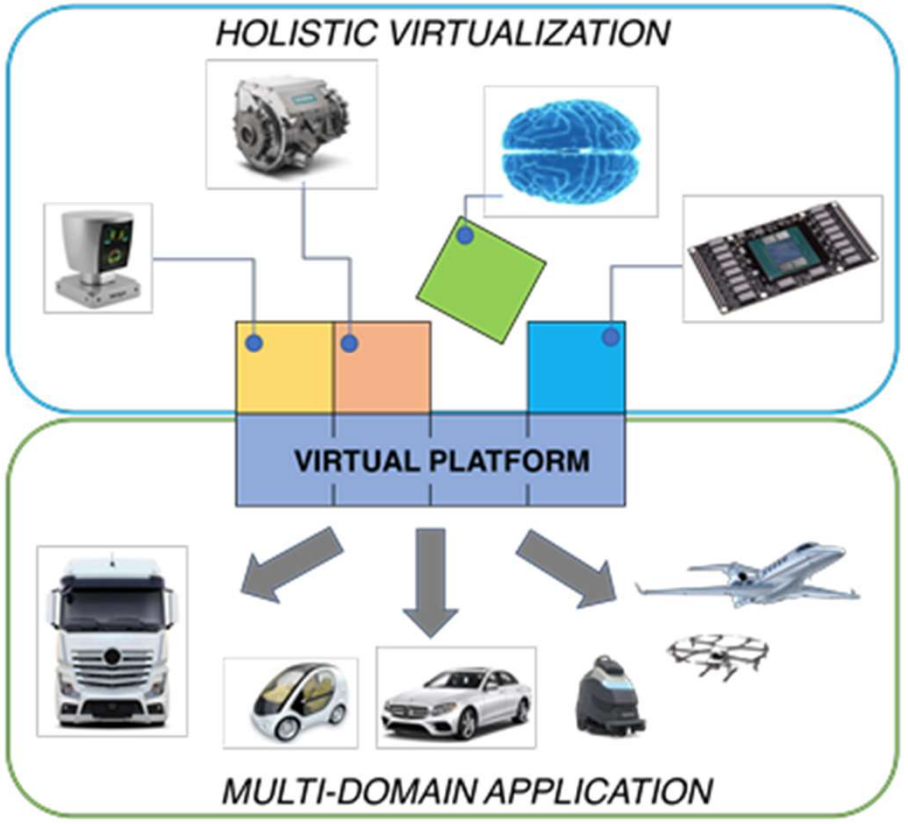
https://www.5gcarmen.eu

NEW CONTROL - Integrated Fail-Operational, Adaptive Perception and Control Systems for Highly Automated Vehicles

Duration: 36 month (2018-2022)
Budget ITA: 2.361.532,00
European Funding: 35%
National Funding: 30%

Achieve certifiability of adaptive algorithms for safety-critical control functions

NEW CONTROL
Holistic virtualized platforms enabling mobility as a service

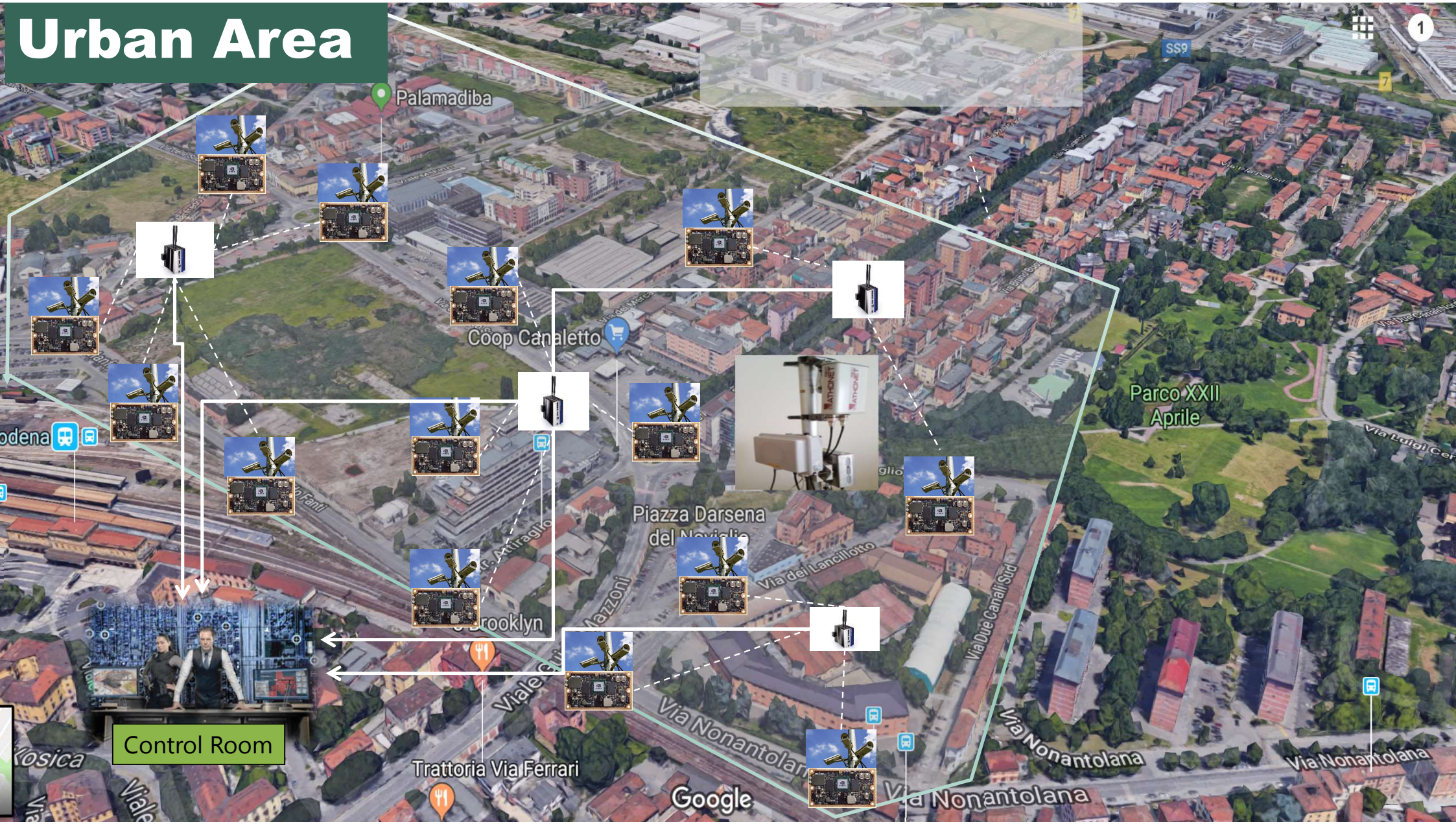


MAIN ACHIEVEMENTS

In terms of:

- Innovation
- Mobility
- Skills
- Engagement of the citizens
- Possible risks and side effects

Urban Area



Palamadiba
Coop Canaletto
Parco XXII Aprile
Piazza Darsena del Naviglio
Via dei Lancillotto
Via Due Canali Sud
Via Nonantolana
Trattoria Via Ferrari
Control Room
Google

CLASS
www.class-project.eu
CLASS
www.class-project.eu

UNIMORE
High Performance
Real Time Lab
hipert.unimore.it

bylogix
HERCULES

MASA Real-Time Smart Cameras

MIND city

RGBW LED FOR CITIZEN INFO

AIR SENSORS
co2, pollution,
temperature, humidity

CARRIER
3 wifi network cards
rj45, Dali, 4g

NVIDIA TX2 SOM

2 HD CAMERA 140° FOV

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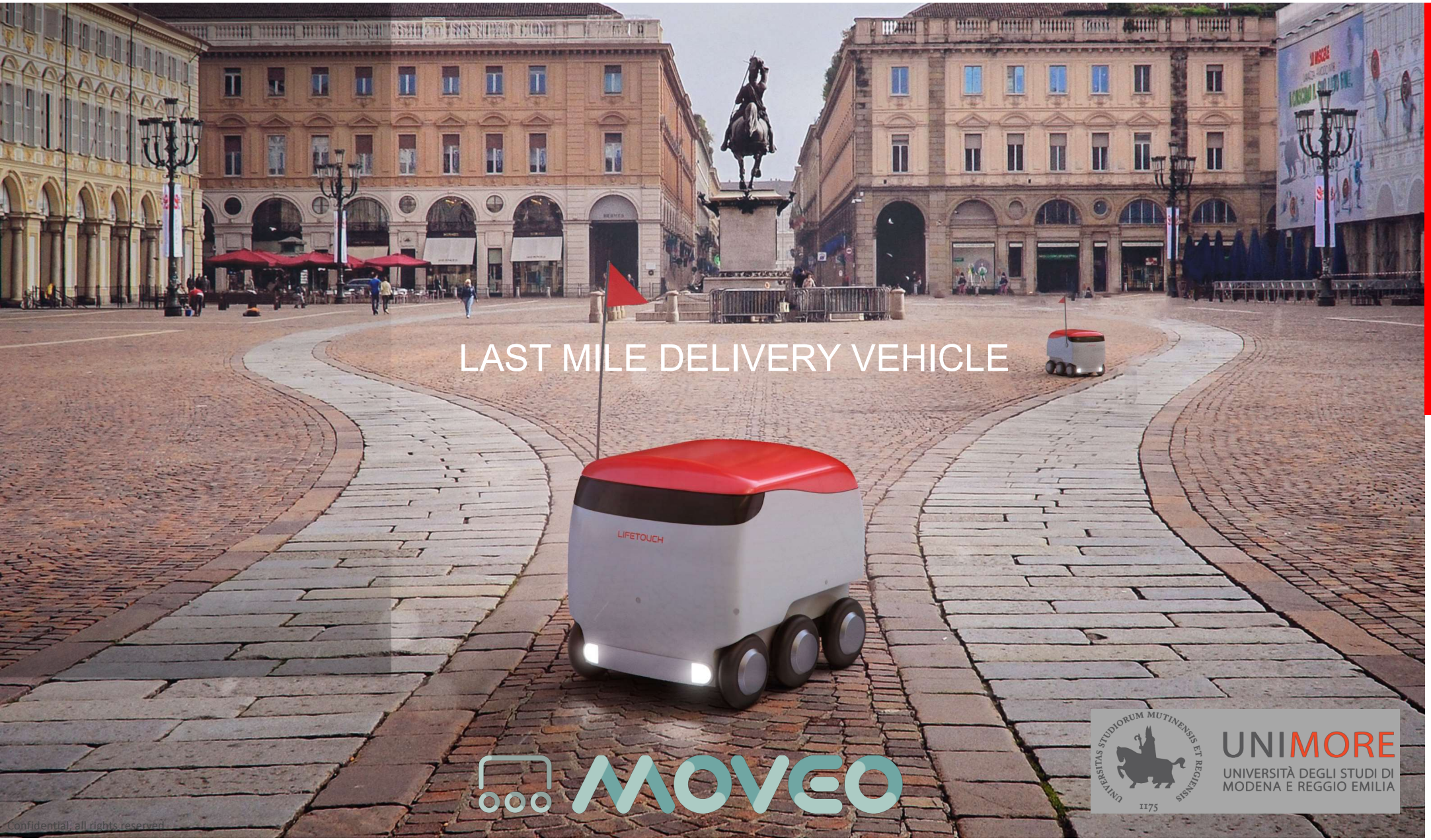

LIFETOUCH

MOVEO

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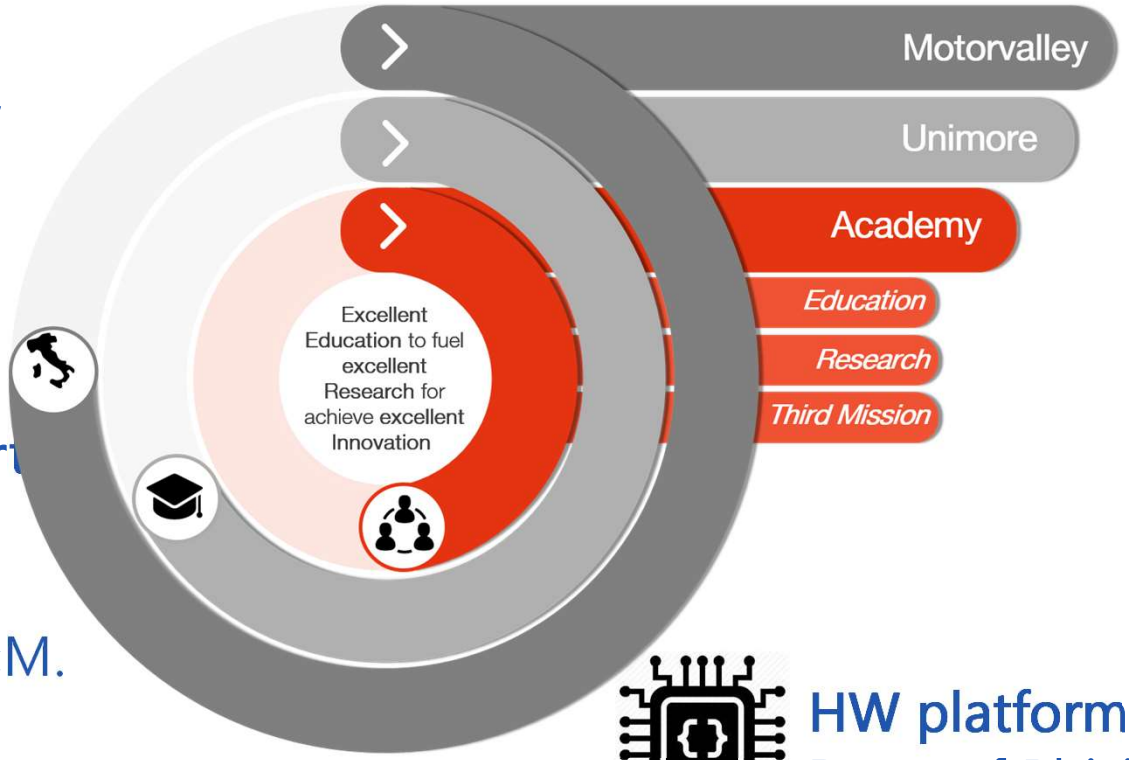
Multidisciplinarity

Privacy and reliability
Dept. of Law

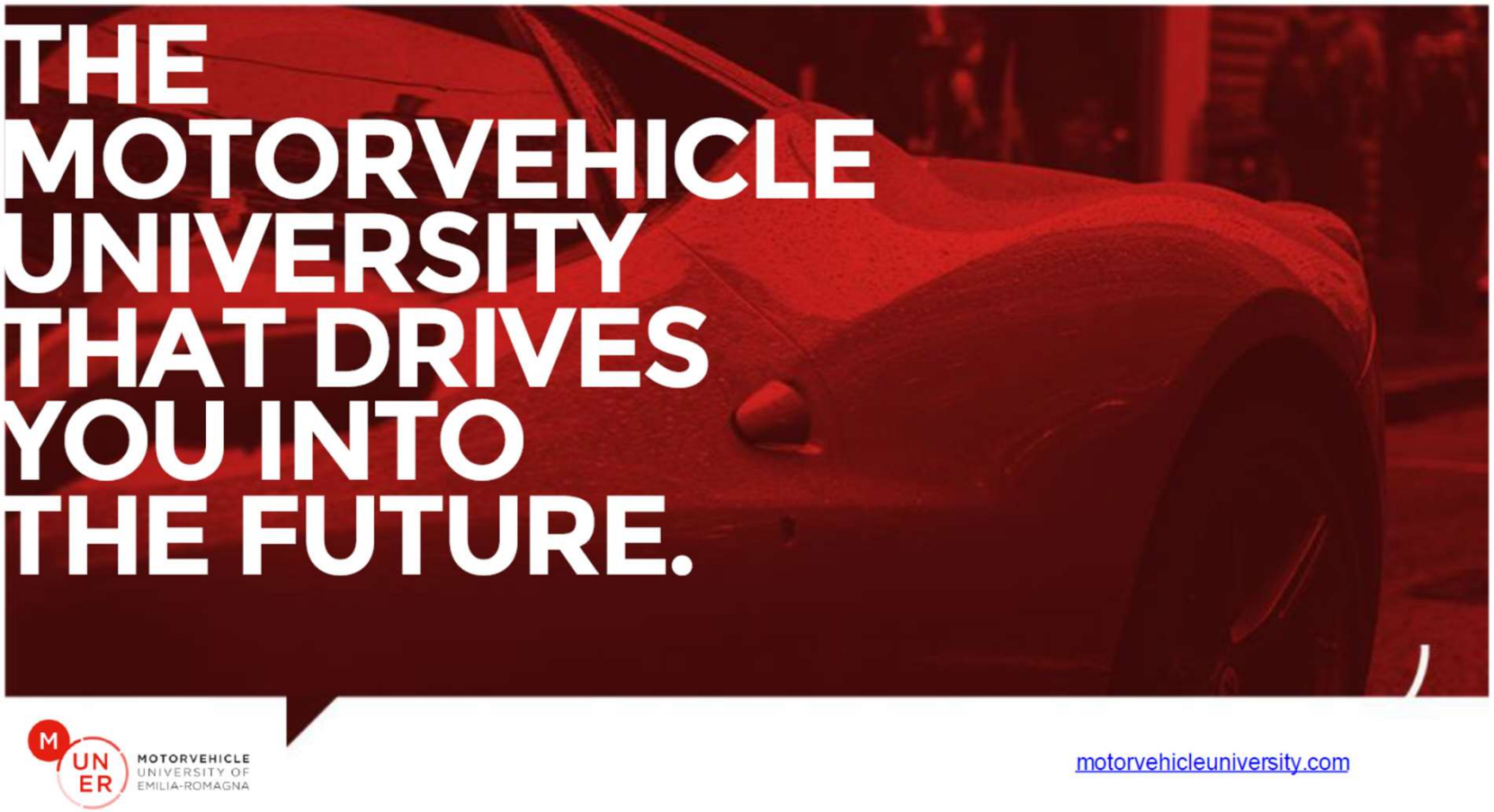
User acceptance, start ups and business models
Dept. of Economics «M. Biagi»



Engineering Design, Vehicle Dynamics, cybersecurity and AI Dept. Of Engineering «Enzo Ferrari»

HW platforms
Dept. of Phisics, math and ICT

MUNER – Motorvehicle Univeristy



MOTORVEHICLE UNIVERSITY OF EMILIA-ROMAGNA

4 Universities

UNIMORE
UNIVERSITÀ DEGLI STUDI DI MODENA E REGGIO EMILIA

ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

UNIVERSITÀ DI PARMA

Università degli Studi di Ferrara

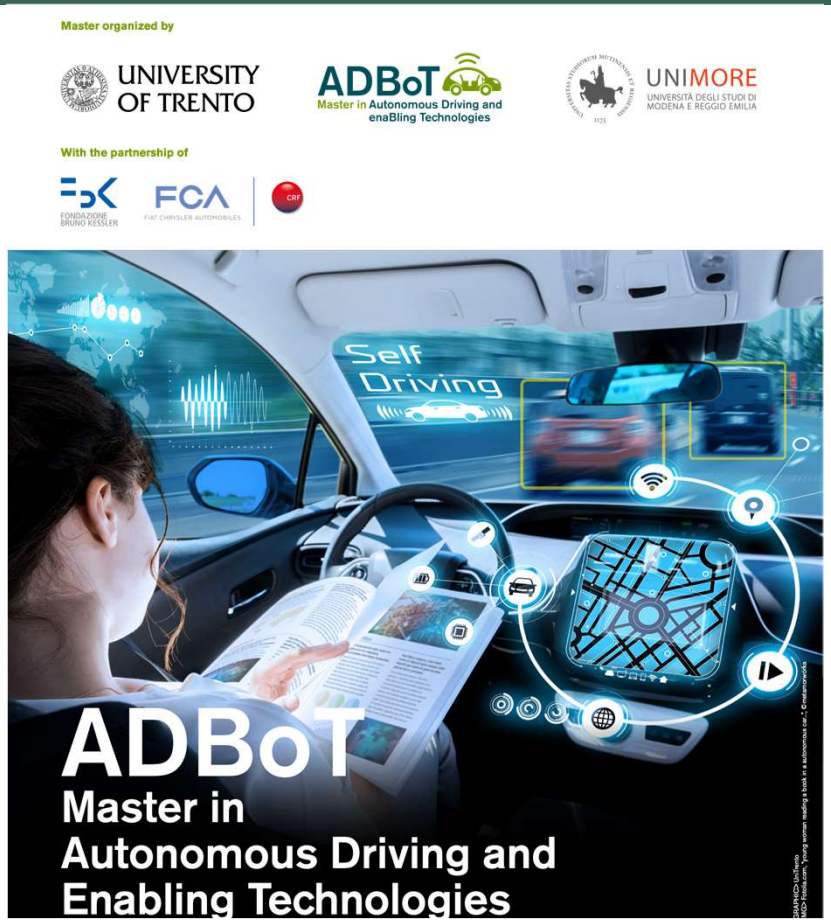
10 Top Brands

Automobili Lamborghini
dallara
Ducati
Ferrari
Haas F1 Team
HPE COXA
Magneti Marelli
Maserati
Pagani
Scuderia Toro Rosso

6 Highly Specialized Professional Profiles

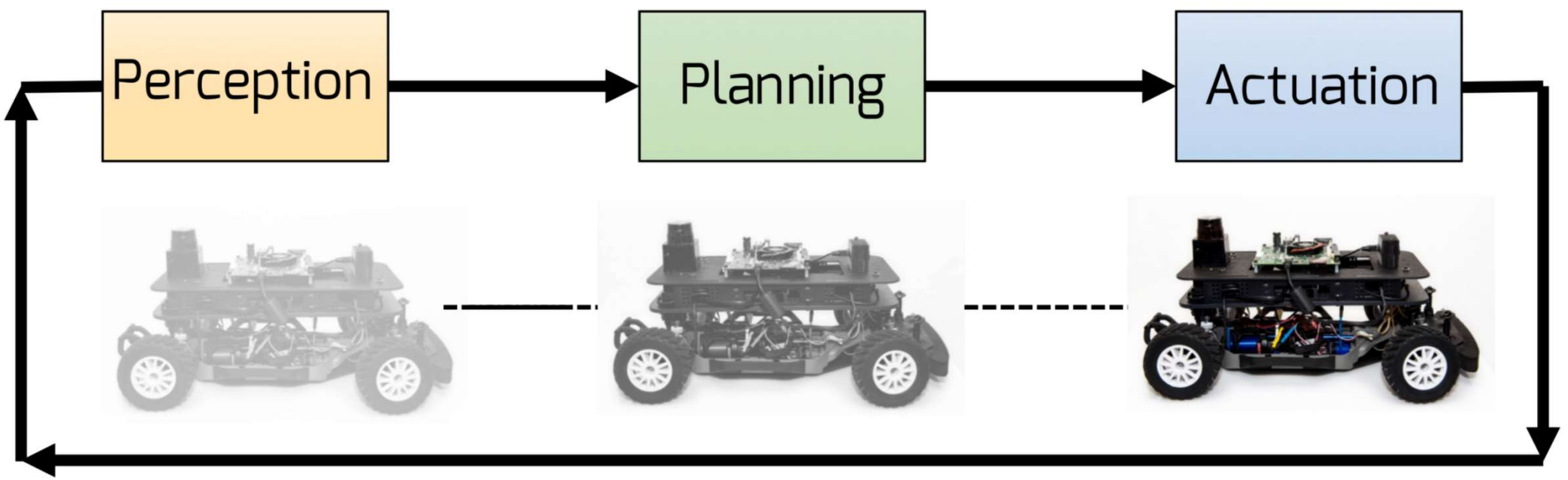
- Advanced Automotive Electronic Engineering
- High Performance Car Design
- Racing Car Design
- Advanced Motorcycle Engineering
- Advanced Sportscar Manufacturing
- Advanced Powertrain

ADBoT - Autonomous Driving and Enabling Technologies



F1/10, Roborace, Fleet Challenge for User Experience

FLEET CHALLENGE


Perception
Planning
Actuation

Level 0

Level 5

AMBITIONS FOR THE FUTURE REQUEST TO:

- Regional government: Include CAM in the new transport regional plan 2025-2035; promote re-training of enrolled staff and support the motor valley touristic attraction.
- National government: Modify the Smart Road Act and allow also RTOs to test on the road their prototype. Support the creation of new degree programm on AD and NEV.
- European Commission: Provide a general legal framework and some homogenization for testing prototypes with L4 functionalities and some obligation for ADAS for trucks.

CONTACT

UNIVERSITÀ DEGLI STUDI DI MODENA E REGGIO EMILIA

HiPeRT Lab
High-Performance Real-Time Lab

Francesco Guaraldi
francesco.guaraldi@unimore.it

http://hipert.unimore.it