



An SME experience with ECSEL

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Co-Founder and R&D Responsible of RE:Lab s.r.l.



Company profile

RE:Lab is an **Interaction Engineering (IE) and Human Machine Interaction company** founded in 2004, based in Reggio Emilia (Northern Italy).



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Skills

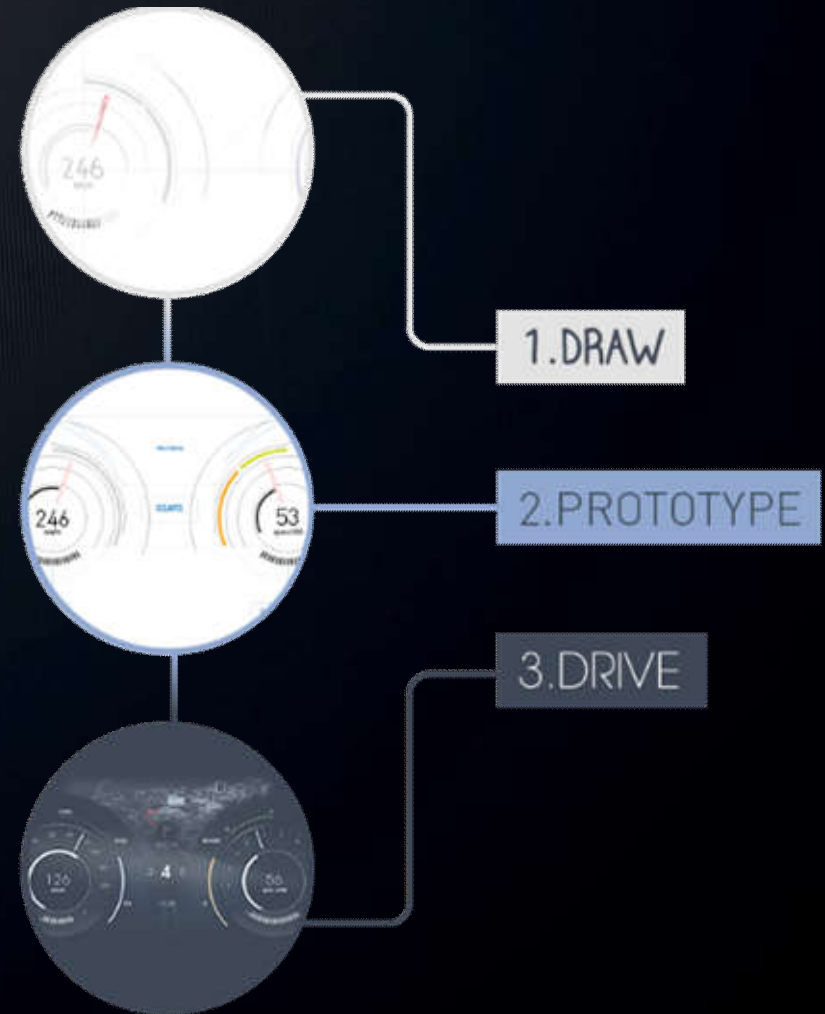
Human factors specialists, designers and engineers work to ideate, prototype and **the most suitable interaction**, either visual, physical, vocal or gestural, **with a product, services and/or complex socio-technical apparatus.**



Motto

From **drawing** to driving

- We turn our ideas and proposal into HMI in working operational environments
- We assess the complexity keeping the human Factors in the centre



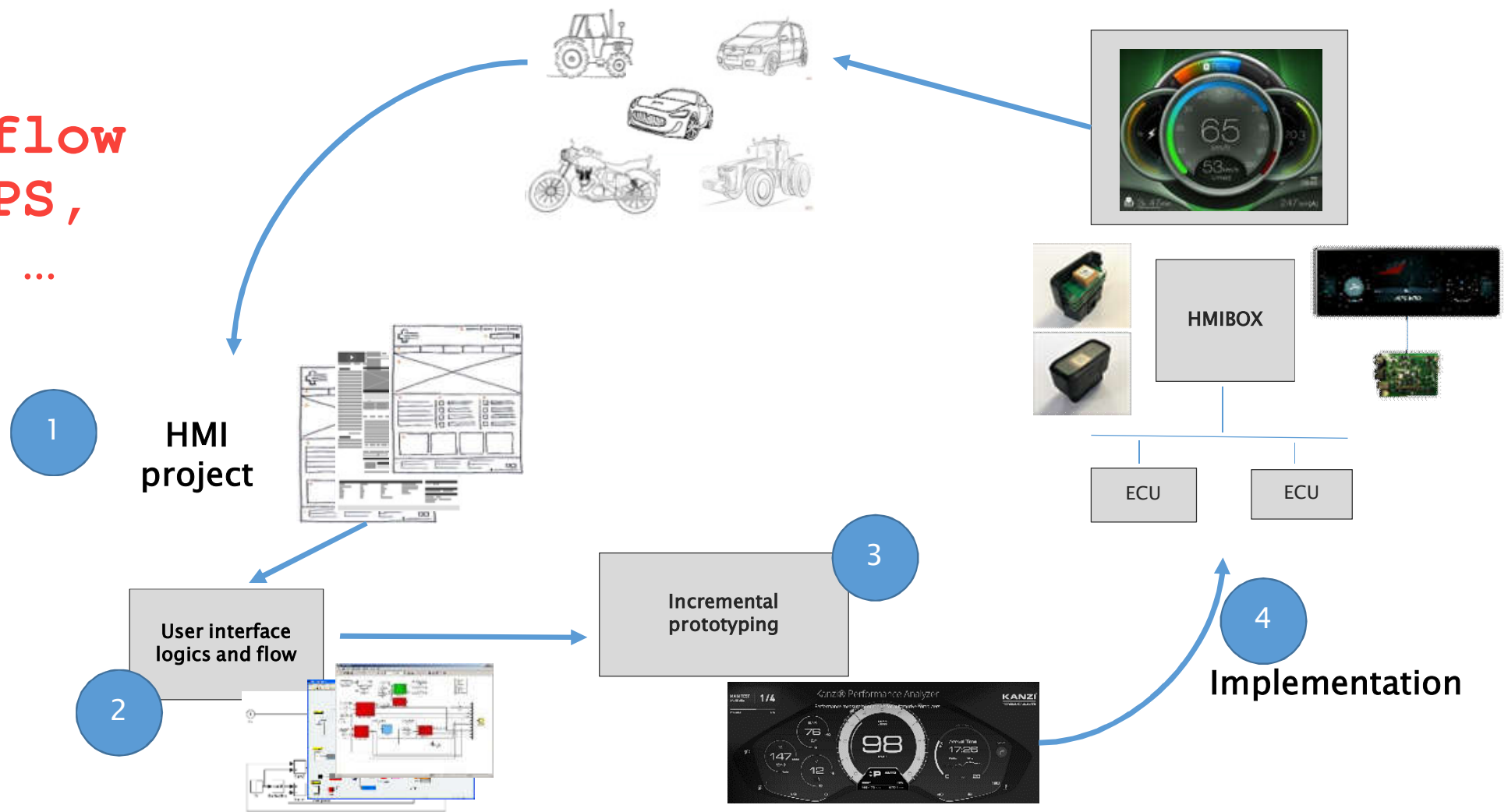
An SME experience
with ECSEL

Major outcomes

- Challenging-oriented activities
- Strong interdisciplinarity
- Different and sometimes technical critical domains



HMI Workflow on CPS, ESS, ...





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A current experience

PRYSTINE - Programmable Systems for Intelligence in Automobiles (www.prystine.eu)



Background

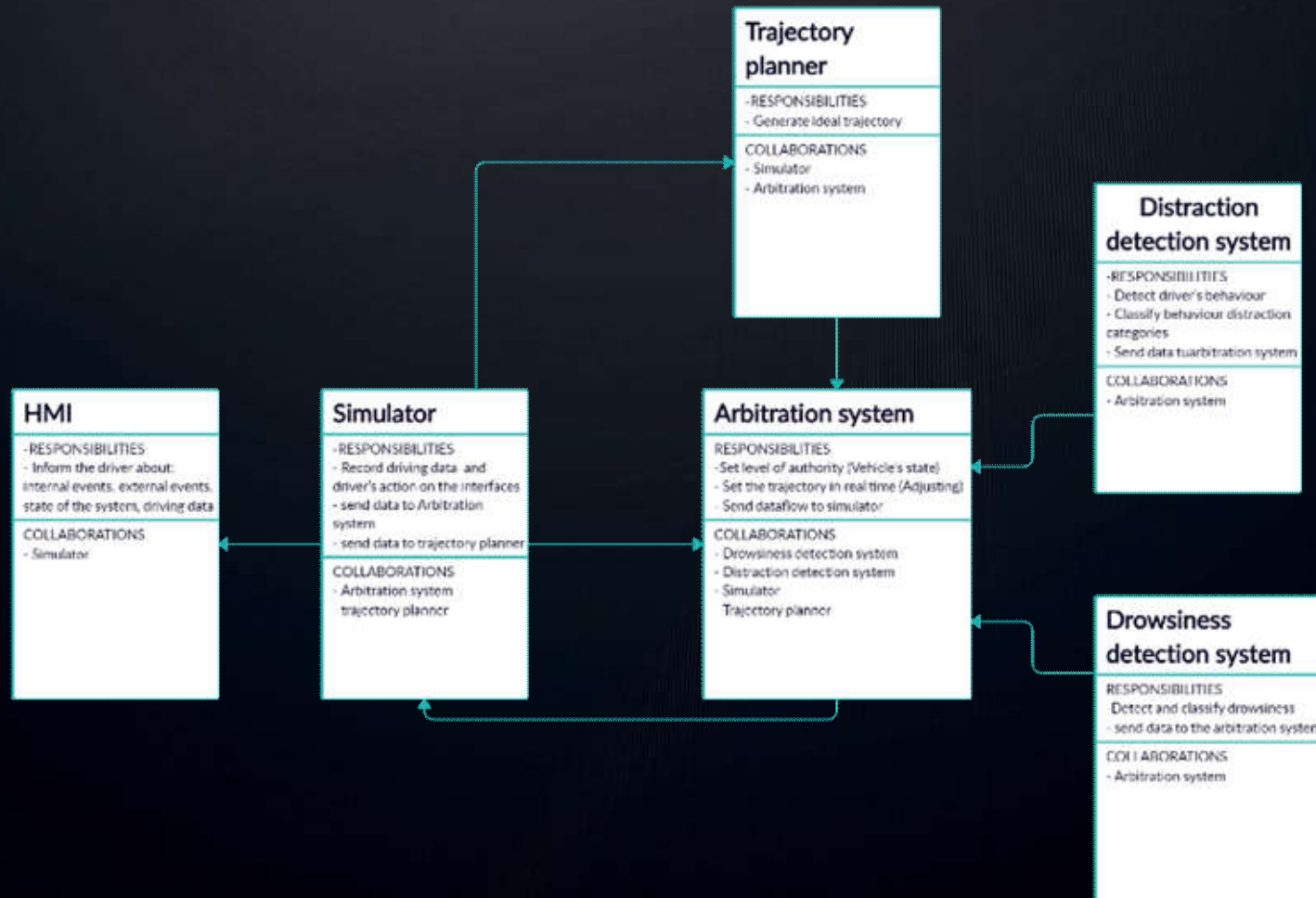
- autonomous driving as potential to change mobility and industry
- High impact in the semiconductor industry since semiconductors play an indispensable role as enablers for automated vehicles.
- Fail-operational behavior is essential in the sense, plan, and act stages of the automation chain

Objectives

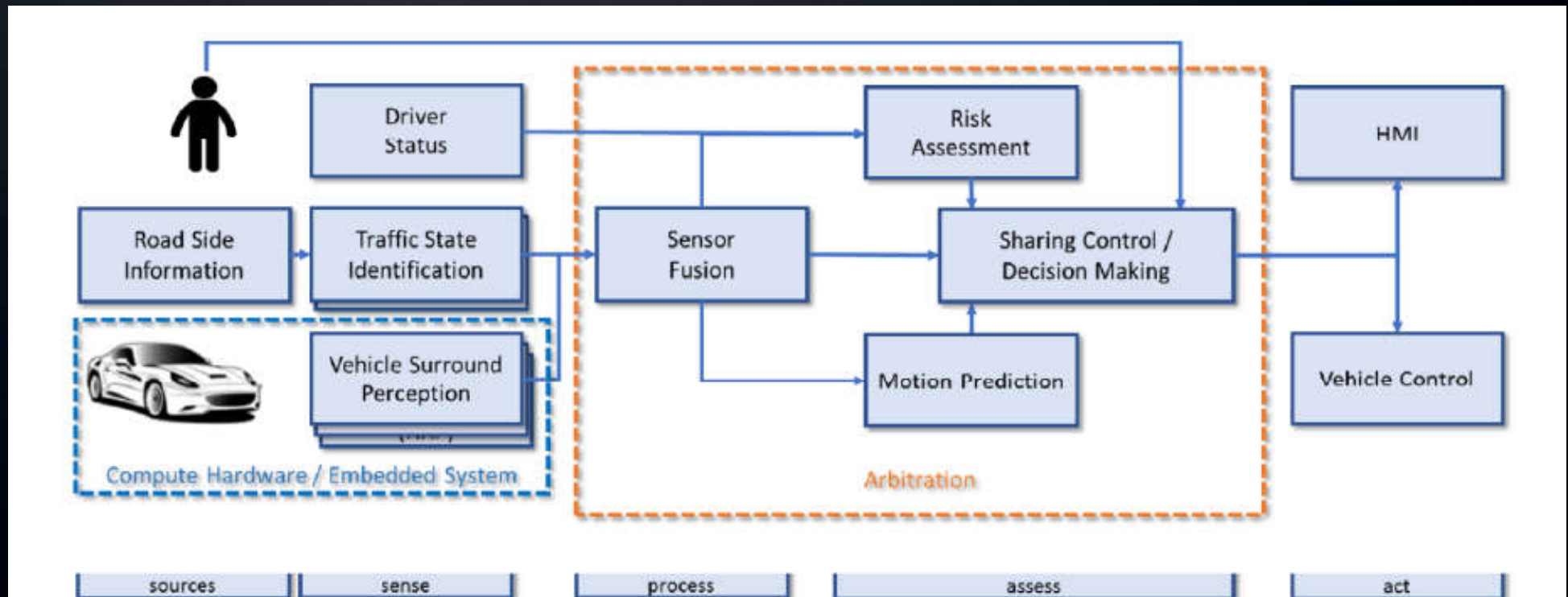
- Develop robust, reliable and redundant sensors to enable highly automated driving
 - Develop innovative strategies to handle the interaction between humans and highly automated vehicles
 - Testing activities including extensive user studies
-
- 36-month ECSEL-RIA from May 2018 to April 2021
 - Consortium made of 60 partners
 - Overall budget : € 50. 832. 120,79 and EU contribution: € 14 446 729,96



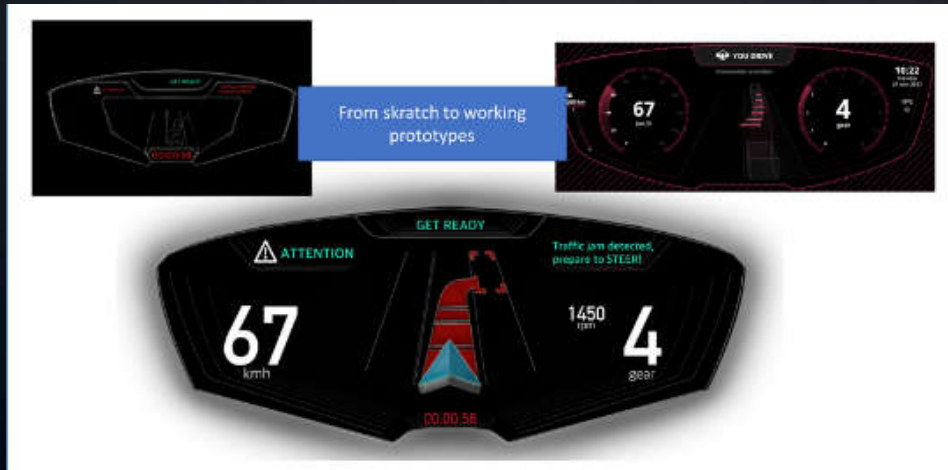
RE:Lab detailed HMI architecture



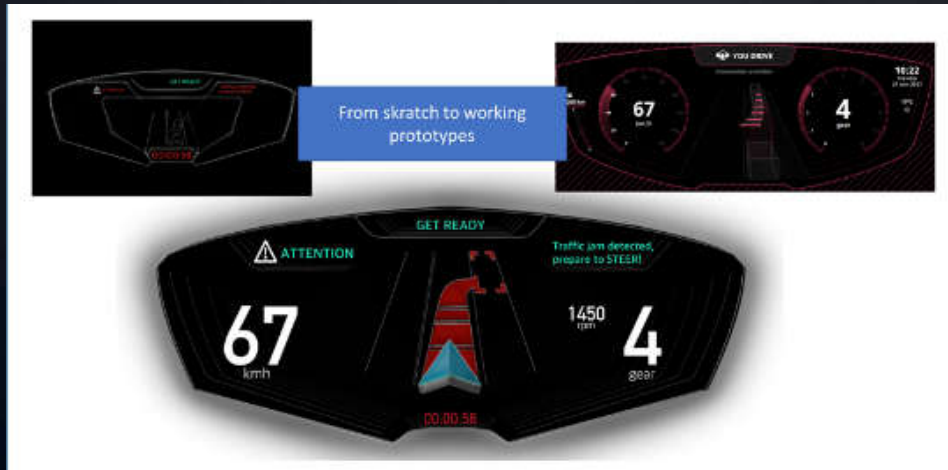
RE:Lab general architecture



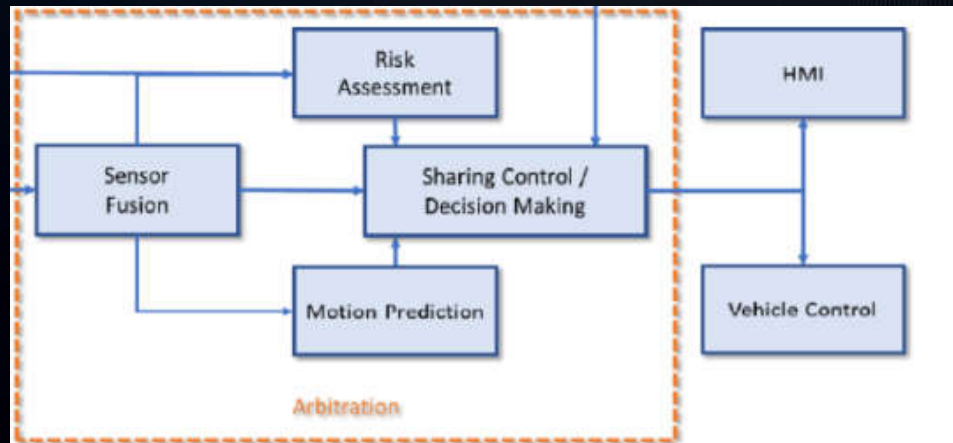
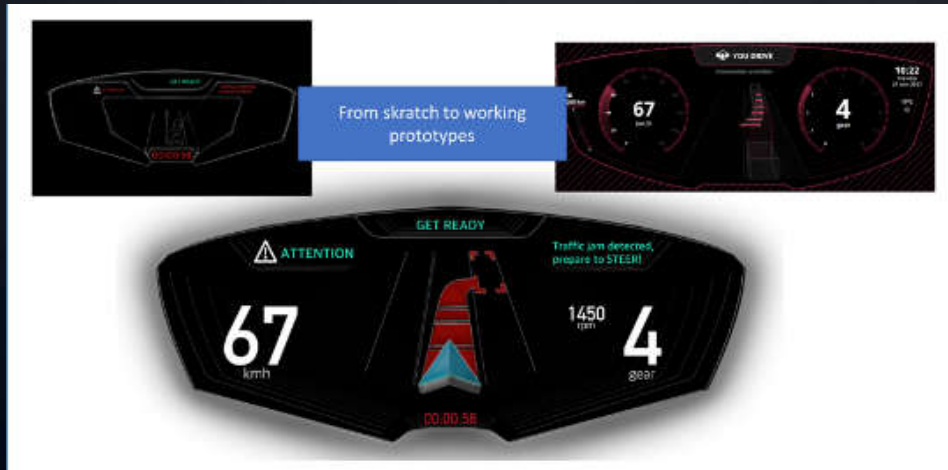
PRYSTINE HMI flow

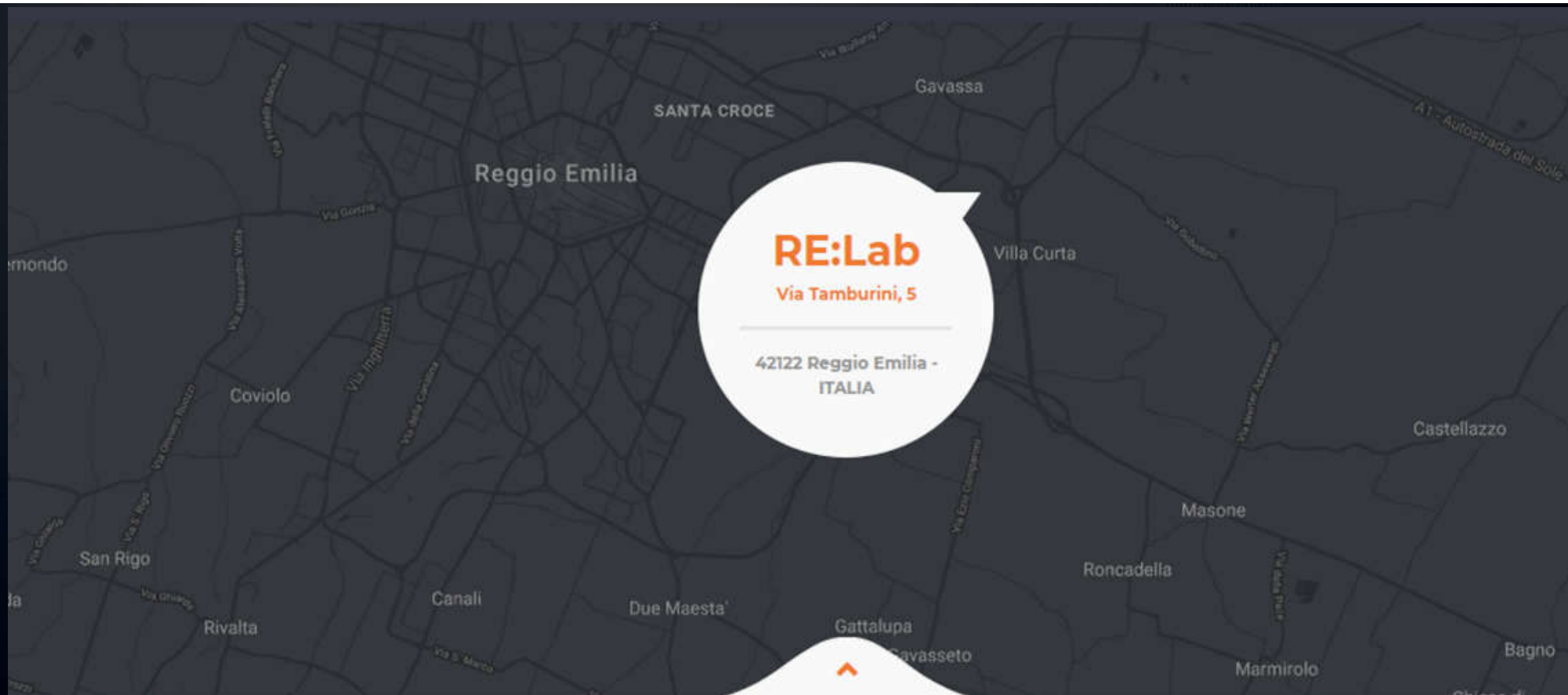


PRYSTINE Human-Machine Interface



PRYSTINE Human-Machine Interface





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LINKS

[DQUID](#)
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Thank you!

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Go ahead in the past

Some previous experience



HoliDes

- Adaptive Cooperative Human-Machine Systems

	Decision	Preparation	Execution
Task modelling	Scan mirrors (C, L, R)	Scan mirrors (L, R)	Initiate LC manoeuvre
	Check frontal distance	Maintain safe gap in original lane	Steering (L)
	Check memory	Activate turn signal (L)	Deactivate turn signal (L)
	Check assumptions	Scan mirrors (C, L)	Scan mirrors (R, C, L)
Cognitive load	medium	medium	medium
Visual load	high	high	medium
Driver NOT distracted AND car NOT approaching on the left			
Interaction modality: visual			
Driver NOT distracted AND car approaching on the left			
Interaction modality: visual			
Driver distracted AND car approaching on the left			
Interaction modality: visual + acoustic			

DESERVE

- Modular ADAS in modular HMIs





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Back to the future

NextPerception – A starting proposal



About the project

- Develop smart sensor for proactive behavior and Physiological monitoring
- Develop distributed Intelligence, to implement use cases in:
 - Transport and Smart Mobility
 - Health and wellbeing, including elderly population
 - Include emotional monitoring into traditional monitoring approaches
- Consortium made of more than 40 partners
- Starting soon

