

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 688900



## EDITORIAL

Driver State monitoring is the key work package of Adas&Me. It is internally phrased as the “heart” of the Adas&Me system. In fact, heart rate parameters are key features in most of the algorithms being developed in the Adas&Me project. A total of six different driver states are being developed which include traditional states like sleepiness and distraction as well as driver states like “rest” that have hardly been explored before Adas&Me. In the next years, the importance of driver state monitoring in the automotive industry is expected to further increase, e.g. Euro NCAP will introduce incentives for systems that detect impaired and distracted driving targeting at a time frame of 2020 [1]. Beyond driver distraction which is mainly based on camera based features, it is necessary to prove that introducing additional physiological parameters offer an additional benefit. This includes an acceptable sensitivity and specificity under real-world conditions. Furthermore, on the sensor side there is a lack of unobtrusive, non-contact sensors that can provide high-quality physiological data. Current research in this field is promising with increasing demand of unobtrusive bio-physiological sensors in the smart wearables market, which grows at a remarkable pace [2]. Another key topic of future research will be the need to better address inter-individual differences in physiological reactions for different driver states. In this context, Adas&Me developed tools that are bundled in the “personalization system” which offer functionalities for implementing personalized algorithms based on driver identification. An important step towards future driver state detection systems that needs to be tailored to the individual for an increased user experience. The Adas&Me team is now focusing on final integration and fine-tuning of the driver state modules into the different demonstrators, including truck, electric and conventional cars, bus and motorcycle. Final evaluations are scheduled for summer 2019 and the team is looking forward excitedly to see the fruits of their work finally in action.

### Marcel Mathissen (Ford)

[1] <https://cdn.euroncap.com/media/30700/euroncap-roadmap-2025-v4.pdf>

[2] <https://www.forbes.com/sites/paullamkin/2018/10/23/smart-wearables-market-to-double-by-2022-27-billion-industry-forecast/#51c494ad2656>

## ADAS&ME Plugfest



The second plugfest in UC C/D was conducted at DLR in Braunschweig during the 18th -21st of June 2019.

Main goal of the second plugfest was the integration of the final hardware into the demonstrator vehicle of UC C/D.

Further the communication of the modules via MQTT and its influence to the HMI was

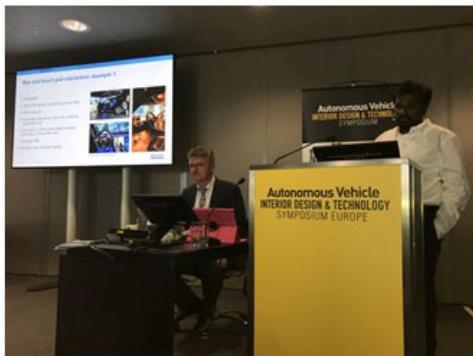
in focus. The integration of the hard- and software was conducted successfully and first HMI tests triggered by the DSS were conducted with promising results. Remaining open issues were detected and solutions were discussed and planned

## ADAS&ME survey user's acceptance and willingness to pay



This survey has been created in the framework of ADAS&ME project (Adaptive ADAS to support incapacitated drivers to Mitigate Effectively risks through tailor-made HMI under automation) in order to assess social acceptance and user-related aspects of the developed ADAS&ME systems. Your answer will be very valuable for the project! Please take a few minutes and clic on our survey: <https://bit.ly/2FhBWUF>

## Human factors: Driving simulated study presented in Stuttgart



Stuttgart



22 May 2019

Arun Muthumani from ADAS&ME project partner [Autoliv](#) presented at the Autonomous Interior design and Technology Symposium at Stuttgart (22nd May) on how Steering wheel HMI plays a pivotal role for creating a seamless interaction between driver and Advance Driver Assisted System. In his presentation, he explained about the driving simulator study conducted at [Fraunhofer IAO](#) for the ADAS& ME project in which *Autoliv's zForce steering wheel* was used as one of the key HMI elements for building the HMI strategy for transition states. The findings from the study highlighted that steering wheel in combination with the instrument cluster is found to be the most essential HMIs that support drivers during transitions.

## ADAS&ME participation at ITS Europe Brainport



Eindhoven



4th June 2019

ADAS&ME project played a leading role during the special session of Driver Monitoring: Towards safe transitions, personalization and user acceptance which took place at the ITS Europe in Brainport (NL). The event was conducted by ADAS&ME project coordinator Anna Anund (VTI) who started the session with a short speech about the relationship between ethics and human factors and how users see the

future cars that will continuously monitoring us. After that, the session continued with a specific explanation of the physiological and health monitoring by Steffen Leonhardt (RWTH Aachen) and the driver readiness in different automation levels by Kevin Nguyen (Use case B leader, from VALEO). Last but not least, Stas Krupenia (SCANIA) shared the “Truck as an office” case about the adaptation of driver state on the interaction strategy.

The session lasted about one hour and questions were responded from a interested audience of more than 50 people. Finally, at the MG3.3 session at the ITS Europe as well, the ADAS&ME coordinator Anna Anund gave a presentation of the ADAS&ME concept and use cases, focused on the Human-Machine Interface (HMI) demonstrated in all ADAS&ME use cases.

### Interview : Maria Beatriz Delgado, IDIADA



#### What is your role in ADAS&ME project?

The principal role for me in the ADAS&ME project is to manage all evaluation issues, mainly around WP 7 on behalf of Applus+ IDIADA. For me the evaluation covers everything in relation to the evaluation preparation, its implementation through the defined procedure (experimental tests on tracks), and also the Final Event which will be held at Applus+ IDIADA's Headquarters, on December 3rd and 4th, in Spain.

#### Which is the most innovative aspect in the WP that you are leading?

Well, we have been struggling a lot with the evaluation framework definition. It has been a challenge to seek and define the way the evaluations can be carried out. I would like to highlight that we have been dealing with more than 4 different driver states for inducement and measurement; 5 different platform demonstrators and the various proposed human machine interaction (HMI) strategies. As a result, a specific methodology has been developed to tackle all the elements involved in the evaluations (fallbacks or B plans included).

#### ADAS&ME is at the final stage: which are the best aspects and the most important difficulties in the project?

As mentioned before, dealing with such a large number of parameters and variables has been a challenge. A lot of people have been involved, working towards the common goal, meaning hundreds of issues all need to be managed and solved. One of the most beneficial aspects from a technical point of view has been the range of new and interesting opportunities that have opened up for Applus+ IDIADA, particularly from a Human Factors perspective. Personally, having the chance to share the experience and work through issues with such highly-qualified consortium members has been priceless.

#### Are you involved in other R&D project funded by European Commission?

Yes I am, in fact, we have just started another European Project called SUaAVE: SUpporting acceptance for automated VEHICLES.

## 10th Plenary meeting in Magdebourg

The last plenary meeting before summer holidays was held on 24 to 26 June 2019 and set by [Otto-von-Guericke](#)

[University](#) in the German city of Magdebourg. As usual, the 2-day meeting started with the status of use cases workshops led by [CERTH](#). The results of the Plugfest, the use cases'

readiness for the evaluation and the preparations of the demonstrations for the final event were the key aspects discussed. The first day closed with the impact analysis (WP8) led by [CTL](#). The 2nd day started with the administrative aspects and check of the action list by Anna Anund ([VTI](#)) and continued with the status of dissemination work package including a summary of the ADAS&ME session that took place at [ITS Brainport](#). WP3 focused the speech on the innovation aspects just before the intervention of Marcel Mathissen ([Ford](#)) about the use cases technical verifications. The plenary meeting ended with the presentations of deliverables D5.2 and D5.4 and the [DLR](#) presented the lecture of HMI and Automation.



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