Who we are

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CloudLSVA

Large Scale Video Analysis

Find out more, get in touch

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Integrating big data, video annotation and cloud based technologies for improved ADAS and Digital Mapping

2016

The problem

The automotive industry needs tools that can manage the extremely large volumes of data (Big Data) especially to provide support in the annotation task (ADAS, cartography market). One of the main bottlenecks in advancing in several application domains (e.g. ADAS, ITS, cartography) is the lack of labelled realistic video datasets of sufficient size, complexity and coverage (comprehensiveness).

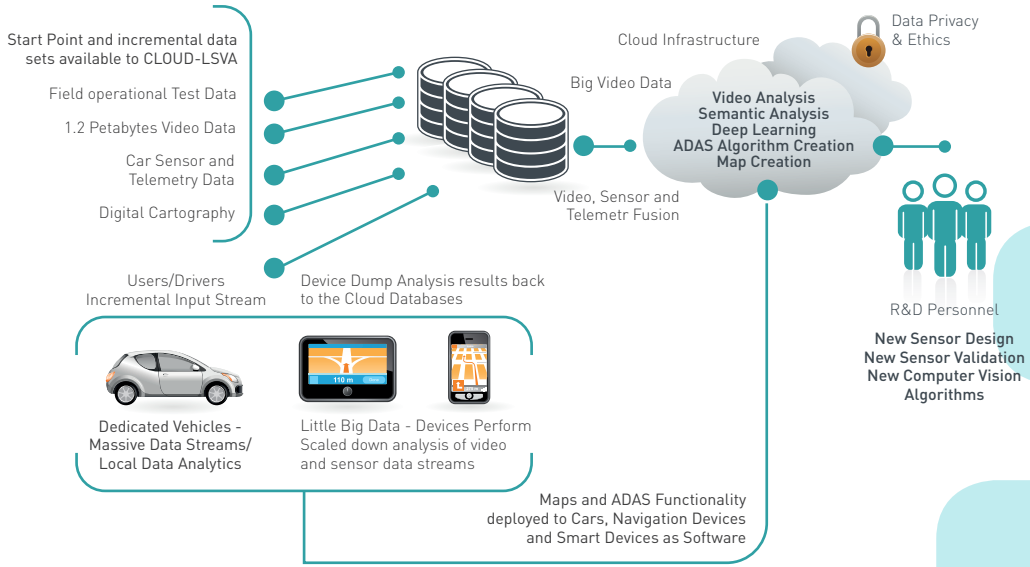
Our solution

We want to build a software platform to address the needs for annotation, recognition and fusion of video and vehicle data by building a software platform for efficient and collaborative semiautomatic labelling and exploitation of large-scale video data.

By making both the ADAS and the dynamic mapping sectors capable of handling large amount of data we will be able to:

- Create large training datasets of visual samples for training models to be used in vision-based detection.
- Generate ground truth scene descriptions based on objects and events to evaluate the performance of detective algorithms and systems

By automating or semi-automating the video annotation process we can bypass the human factor and open up the possibilities for video analytics triggered innovation in the automotive domain.



Cloud-LSVA

Cloud-LSVA will analyse and decompose each recorded scene, in order to detect and classify relevant objects and events for specific scenarios. Furthermore, the mined and annotated video metadata shall be used to train and evaluate algorithms for real-time analysis of visual and non-visual sensors in cars. We will be testing the platform in 2 scenarios:

- Advanced Driver Assistance Systems (ADAS): Analysis and annotation of petabytes of data to train and validate visual, radar and telemetry sensor data to create continuously improving ADAS algorithms for deployment in motor vehicles with possible applications in autonomous vehicles and robotics.
- Digital Cartography: Street and lane level analysis and interpretation of video to automatically create new digital maps for navigation applications and provide assisted positioning (i.e. in urban canyons, underground parking structures, complex flyovers, tunnels) for deployment in motor vehicles with certain application in autonomous vehicles and robotics.

Our approach

Prototype Alpha (M9-M12)

- Deploy scene recording SW and HW into real vehicles and test the creation, format and upload of content from vehicles to the cloud network.
- Preliminary analysis and annotation capabilities.

Prototype Beta (M21-M24)

- New developments will exist on the cloud, in the form of annotation tools, training techniques and deployment of vision-based ADAS and map updating methods.
- Evaluate both the ability of the system to handle increasing volumes of collected data and evaluate the increased performance and added functionalities developed during the cycle.

Prototype Gamme (M33-M36)

- Final tests: the final deployed ADAS and map update techniques available for the test vehicles.
- To evaluate performance of the cloud infrastructure for increased growth of real data collected from the test vehicles, both in terms of storage and processing.

Hackathons/Testathon & TestFest

We will be testing and developing the platform at multiple TestFest events and hackathons throughout the project lifetime to receive valuable feedback and user validation for further improvements.