



SALI

Smart self-driving vehicle

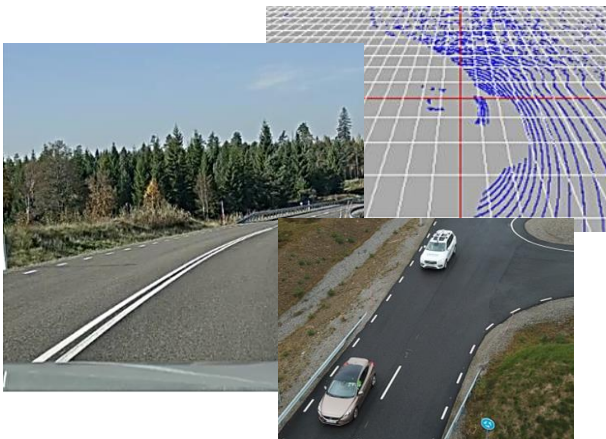
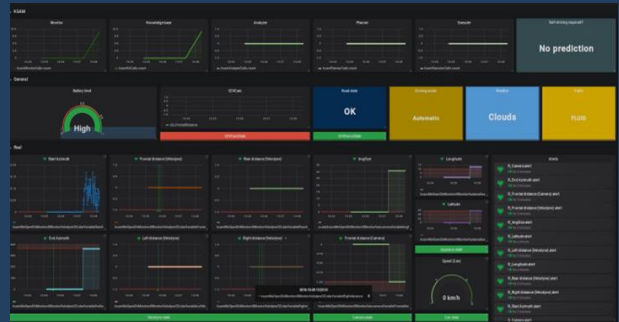
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Project goal

SALI aims at providing an open software engineering solution to integrate self-* capabilities, e.g. self-healing and self-optimization, to self-driving vehicles in order to deal with runtime factors such as unpredictability, faults and limited resources.

About SALI solution

SALI utilizes machine learning techniques over thousands of heterogeneous runtime data gathered through sensors, cloud services and vehicle-to-vehicle communications for providing resilient and just-in-time monitoring to self-driving vehicles. Our software engineering solution relies on a feedback control loop implemented by a set of microservices in charge of: gathering runtime data, analyzing context, planning monitoring adaptations and executing them, at runtime.



Testing and results

A series of experiments have been run on the full-scale AstaZero test ground environment. Three Volvo vehicles have been used during the experiments: two XC90 and a V40. Three different use cases have been tested: a sensor fault, low battery level and a road accident. Vehicle's monitoring has been successfully adapted at runtime, e.g., activating alternative sensors, deactivating unnecessary sensors or changing parameters in case of route recalculation. The results of the experiments are promising in terms of both functionality and response time.

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