Institute of Automotive Technology
TUM School of Engineering and Design
Technical University of Munich

IDP

How is my Autonomous Vehicle? – Optimization of a Status Monitor

Testing and Operation of Autonomous Vehicles is often complex and requires monitoring the health of the software. Thus, it is important to monitor the status of the AV and its software components during the operation. Take the chance to optimize a status monitor for our AV research vehicle EDGAR.

Background

Monitoring the system of an autonomous vehicle is crucial and important for the safety and efficiency of the operation. This ensures the awareness of degraded components and the chance to react quickly. Especially software components are important to monitor during the operation.

In this project, you have the chance to work on an existing ROS2 (Robot Operating System) status monitor for our AV research vehicle EDGAR. The status monitor should be extended by functionality and optimized in terms of its performance. The main tasks will be getting comfortable and understanding the current version of the implementation, identifying potential for optimization, and working on new features. Using a ROS2 software stack for autonomous vehicles, your concept and develeopments can be tested and validated on a virtual (HiL) and real version of EDGAR.

Language

English/German

Your Role

- Onboarding: Get comfortable with the current status monitor
- Critical Analysis: Identify optimization potential in terms of performance and completeness
- Implementation: propose solutions for and implement suitable them (according to literature or community)
- Testing & Validation: Validate your solution on a real-world AV platform
- Documentation: Document your code and work continuously

What should you bring along?

- Strong interest & motivation for automated driving
- Initiative & independent way of working
- Programming skills, e.g. C++

What are your benefits?

- Opportunity to work on a real-world AV stack
- Option to write a master thesis afterward

If you are interested, please send me a grade sheet with your CV!

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