TU Clausthal

Abschlussvortrag Masterarbeit Smit Luvani

„HiL simulation platform-based continuous testing of software-based vehicle functions using test automation and DevOps approach“

Hardware-in-the-loop (HiL) simulation is an essential part of software quality assurance in the automotive industry and enables the validation of electronic control units (ECUs) under real-life conditions. However, due to the increasing complexity of embedded control functions in vehicles, the traditional process of performing HiL testing is time-consuming, repetitive and labor-intensive. This can make it difficult for project managers and teams to complete the development and operation process efficiently.
The aim of the study is to integrate DevOps principles with HIL simulation testing to streamline and automate the testing process. This ensures highly efficient development and validation of ECU software and simulation environments. The proposed approach utilizes the CI/CD tool Jenkins, which allows tests to be started in response to specific events in the version control system. By using Jenkins and GitLab to manage automated pipelines, model development, code generation and execution, test execution and reporting can be performed efficiently, promoting teamwork and productivity. This can reduce the manual effort and time required to perform HiL testing with real-time simulators and provide feedback to the appropriate parties, ultimately resulting in a more efficient and faster process for HiL development and operational lifecycle. To demonstrate the effectiveness of the proposed approach, a high-fidelity vehicle system model was used, which includes a complex gasoline engine system and vehicle dynamics.

Betreuer der Arbeit:	Prof. Dr. Andreas Rausch, PD Dr. Christoph Knieke
Datum:	Mittwoch, 08. Mai 2024, 16:00 Uhr
Ort:	Online-Meeting über BBB
	Link: https://webconf.tu-clausthal.de/rooms/cur-kqd-kmx-kcc/join