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we develop customized solutions from idea to production and beyond.

Project details: JAMES - Fully automatic driving robot

Industries

- Automotive, Special Mechanical Engineering

Technology fields

- Propulsion Technology, Image Processing, Bus Systems and Radio, Optical Measuring Systems, Intuitive Input Devices, CAE; Measurement, Control and Regulation Technology

Project requirements

- The aim of the project was to develop with partners an automatic driving robot for precise, repeatable simulation of road travels, even under extreme conditions, on a roller dynamometer test bench for long periods or for emission tests.
Special emphasis was laid on an intelligent, modular and lightweight system design. This allows extremely short set-up times of <8 minutes and a simple, menu-driven handling.

Facts / Highlights

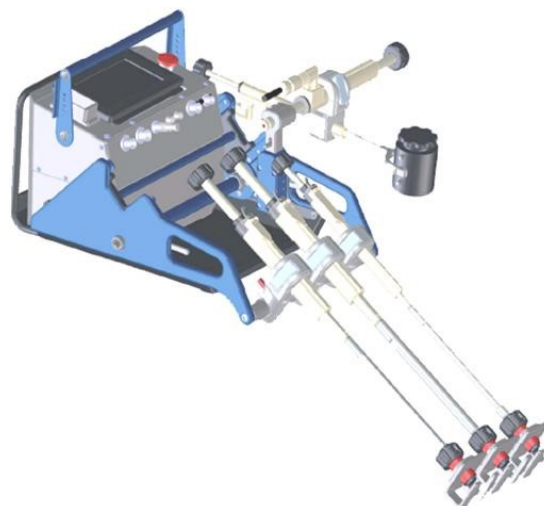
- No need for a test drive or learning the clutch bite point
- Via Knestel Rapid Prototyping Environment (RPE) the complete system is debugable and configurable at runtime
- Adaptive and model-based control, depending on the objective, reproducibility, good sequence of speed and / or emissions
- Because of the modular design and the innovative drive concept (linear motor), the system is basically applicable to all types of vehicles
- Repeatability <0.04 parts per thousand (control performance of +/- 0.2 km/h at constant speed)
- Drives similar to people

Services of KNESTEL

- Control of actuators based on Model-Based-Design
- Expansion of cognitive abilities of the robot
- Fully automatic driving of all types of vehicles with minimal `teach-in` effort of the actuators
- Reproduction of the states sequence when driving to human model
- Development of the motor control

Possible applications

- Propulsion Technology
- Test and Automation Systems
- Nonlinear, model-based, adaptive control technology



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