

Master's Thesis: Modelling and Control of Active Suspension for Passenger Cars



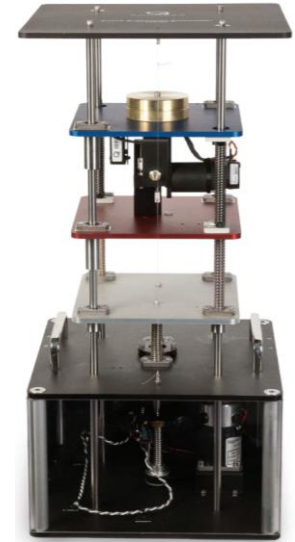
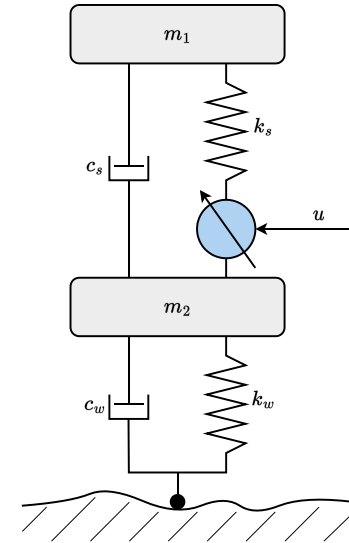
Description:

In comparison to a passive suspension system, an active suspension system includes an actuator, which enables to control the vertical vehicle movement caused by the road surface as well as cornering, acceleration and deceleration. Ideally, an active suspension allows the isolation of the car body from external disturbances as well as keeping steady contact between tires and the road. This improves driving comfort and safety.

The goal of this master's thesis is to develop the control of an active suspension system for passenger cars. For this purpose, the model of a quarter car as well as a full vehicle model, should be implemented in Matlab/SIMULINK. Different control strategies should be compared based on the quarter car model and experimental studies using a laboratory setup. The most promising control strategy should be applied to the full-vehicle model.

Objectives:

- Literature review on control concepts of active suspension systems
- System modelling and implementation in Matlab/SIMULINK
- Comparison, selection and implementation of suitable control concepts
- Implementation of control concepts on a laboratory setup
- Simulation and verification with a full-vehicle model



graphic from quanser.com

Contact:

IRT: Markus Reichhartinger
markus.reichhartinger@tugraz.at, +43 316 873 - 7027

Magna: Dr.techn. Anastasiia Galkina
anastasiia.galkina@magna.com, +43 7435 501-3416