

Lehrstuhl für Systemtheorie und Regelungstechnik  
Institut für Automatisierungstechnik

# Call for a group technical project

## Implementation of a path following controller on unmanned ground vehicle

Designing a safe path for an unmanned vehicle is a crucial problem. The path should be not only obstacle free but also take into account the vehicle dynamics so that the path is feasible. Once the path is generated a path following controller should be able to execute this path driving the vehicle from certain start point to final destination point.

Working in **a group of 2 students**, the aim of this project (given the obstacle free path) is to :

1. Define the working environment (start point, end points and obstacles)
2. Implement a path following model predictive controller on a ground vehicle Hamster (see figure).
3. Prepare a presentation for the achieved tasks

### Subject areas:

Robotics, Optimal Control, Path Planning, Programming

### Prerequisites:

The candidates should have a good background on optimal and model predictive control and unmanned ground systems as well.

Programming language: Matlab , Python

### Start time:

Immediately

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