



# Path Following Algorithms for Mobile Robots

Path following is one of the elementary tasks that a wheeled mobile robot needs to perform. Demands on the path following include following accuracy and speed, as well as computing time of the algorithm.

Various path following algorithms have already been developed and examined. The goal of this thesis is to implement different state of the art path following algorithms, and experimentally compare them using one of the outdoor buggies developed at our department. The buggy that will be used for this work has a reconfigurable steering system, so it can perform as Ackermann- or two-axes-steering vehicle.

The work on this thesis is supposed to be done in the context of DLR SpaceBot Cup 2015, at which the Team Attempto Tübingen participates among 9 other teams from Germany.

The candidate should first implement a geometric algorithm (pure pursuit), and then a kinematic controller based on the chained form (introduced by C. Samson). These algorithms should be experimentally tested and compared. A third algorithm which considers virtual vehicle tracking could also be implemented, and included in the analysis.

Knowledge in C++ is required, and some experience with robots is desired.

## Kontakt

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