

Projektförslag för kandidatarbete vid Elektroteknik (E2)

EENX15-21-22 Actuated kickstand for an autonomous bike

Background

In a research project the department develops self-driving bikes with the purpose to be used in test-driving experiments where vehicles' safety systems for bike safety are tested. In such a test the self-driving bicycle drives pre-defined trajectories carrying a dummy to look as similar as possible as a real biker to the vehicle's sensor system. Designing the bikes contain several challenging tasks. The current kickstand on the bike needs to be flipped down by a user which



means that someone must run next to the bike during experiments and catch it before it falls when the experiment ends, and the motors stop running. Having an actuated kickstand would allow the bike to reduce its speed until it can stop on its own without requiring a user.

Problem description

This project aims at designing and manufacturing an automatic kickstand mechanism, actuated by a motor and controlled from a micro-computer. The main tasks in the project are:

- Design and manufacturing of the kickstand including calculations of requirements.
- Select the motor that actuates the kickstand and other part
- Implementation of a controller for the motor in Python

Number of students: 4

Number of groups: 1

Suitable background: TKAUT, TKELT, TKMAS, TKDAT, TKDES

Prerequisites. Knowledge in the following topics: design and manufacturing of PCBs, design and manufacturing of 3D printed parts, knowledge of Python.

Contact: Maxime Feingesicht, maximef@chalmers.se
Jonas Sjöberg, jonas.sjoberg@chalmers.se