

Projektförslag för kandidatarbete inom Elektroteknik (E2) EENX15:

Design of Light, crash-worthy, Self-Driving 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. Volvo Cars, Veoneer, Autoliv and AstaZero are partners in the project. The bicycle drives pre-defined trajectories carrying a dummy to look as similar as possible as a real biker to the vehicle's sensor system. So far, the bikes are modifications of normal bikes. For some tests there is a risk for the bike to be hit by the car at high speed, and for such tests there is a need of a light and crash-worthy self-driving bike, and that is the goal of this project.



Problem description

The project task is to design and build a light and crash-worthy self-driving bike. The structure must be stiff, and play must be avoided so that the bike can be balanced by the controller. Limits on acceptable stiffness should be calculated and verified in simulation. A mechanism for steering and propelling the bike is available to verify system in the end of the project.



Målgrupp: TKAUT, TKMAS, TKTFY

Gruppstorlek: 3-6

Antal grupper: 1

Förkunskapskrav: Mekanik, reglerteknik

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Projekt Rapport: Svenska / Engelska, valfritt