

Projektförslag för kandidatarbete vid Elektroteknik (E2)

EENX15-21-23 Development of a GUI 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.



Problem description

This project aims at designing and manufacturing a radio controller that can be used to manage and monitor experiments using an autonomous bike. The controller should communicate wirelessly with the onboard computer in the bike and display information about the bike's sensors and actuators on a screen. Switches, knobs and a tactile screen can be used to give user inputs to the bike. The main tasks in the project are:

- Design and manufacturing of the printed circuits boards (PCBs)
- Design and manufacturing of the housing containing the components of the radio controller
- Design of user-friendly software, considering fault-tolerance and other important aspects.
- Implementation of the code allowing the radio controller to communicate with the bike
- Verification on the real bike.

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.

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