TU Clausthal

Kolloquium zur Bachelorarbeit

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„Developing a position estimation algorithm for a PX4 controlled drone in Gazebo“

One of the most challenging tasks for Unmanned Aerial Vehicles (UAVs), commonly known as Drones, is autonomous navigation in an unknown or uncertain environment. This work essentially describes a learning-based method combined with geometric analysis to enable a flying UAV in Gazebo to estimate the relative 3D position of detected objects in real-time. The proposed approach requires information about the pose, precisely the orientation of the camera with respect to the world, and the calibration of the camera. For demonstration purposes, a simulated front monocular camera was set up on a simulated drone flown in the Software-In-The-Loop(SITL) simulation environment ROS-Gazebo populated with a few objects. The PX4 flight control software for drones is used to control the drone, which integrates quite well with Robot Operating System(ROS) and Gazebo. The experimental results will be shown in the presentation. In addition, an error analysis is performed to determine the performance of the proposed approach.

Montag, 04. Oktober 2021, 09:00 Uhr

Videokonferenz: BBB https://webconf.tu-clausthal.de/b/dyl-5xf-jis-oap

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