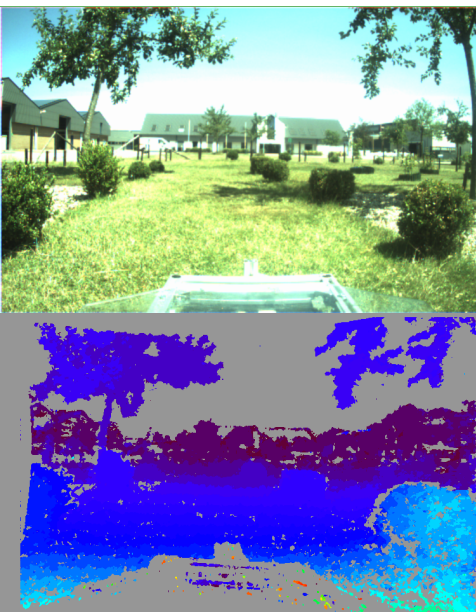




TrimBot2020 **ETH** Zürich

The TrimBot2020 project researches the robotics and vision technologies to prototype the first outdoor garden trimming robot. The robot will navigate over varying terrain, approach rose bushes, hedges and boxwood topiary, to trim them to an ideal shape. The robot will be based on a modified Bosch Indego robot lawnmower, which will navigate using a user-defined garden map and 3D scene analysis, and then visually servo a novel electric plant cutter.



ETH Zurich is responsible for the camera system and its calibration, 3D scene perception via stereo, visual SLAM, and the localization of the Trimbot in the garden. To this end, ETH Zurich develops the multi-camera system used in the Trimbot2020 project, which uses an FPGA to synchronize all cameras, as well as suitable SLAM and localization algorithms. At the same time, the FGPA also directly provides stereo depth maps. ETH Zurich leads the work package on 3D data acquisition. A focus of ETH Zurich's contribution is to integrate semantic scene understanding into the data acquisition and localization pipelines in order to deal with the special challenges encountered in the Trimbot2020 project.

