

Trimbot2020: a robot for hedge and rose trimming

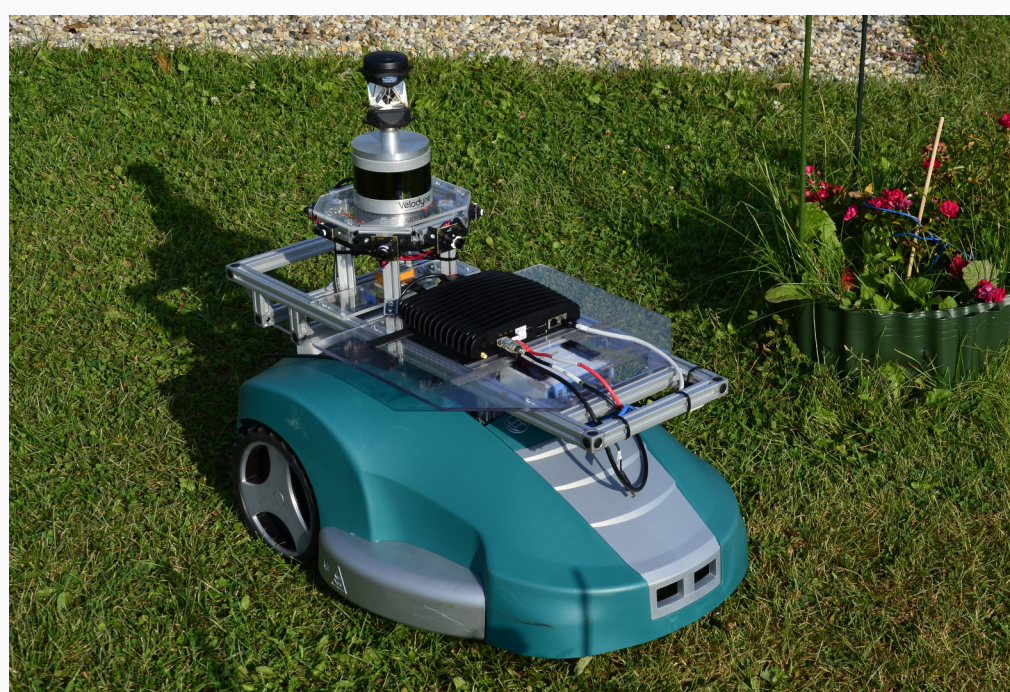
Intelligent Systems
University of Groningen

Project

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.

Components

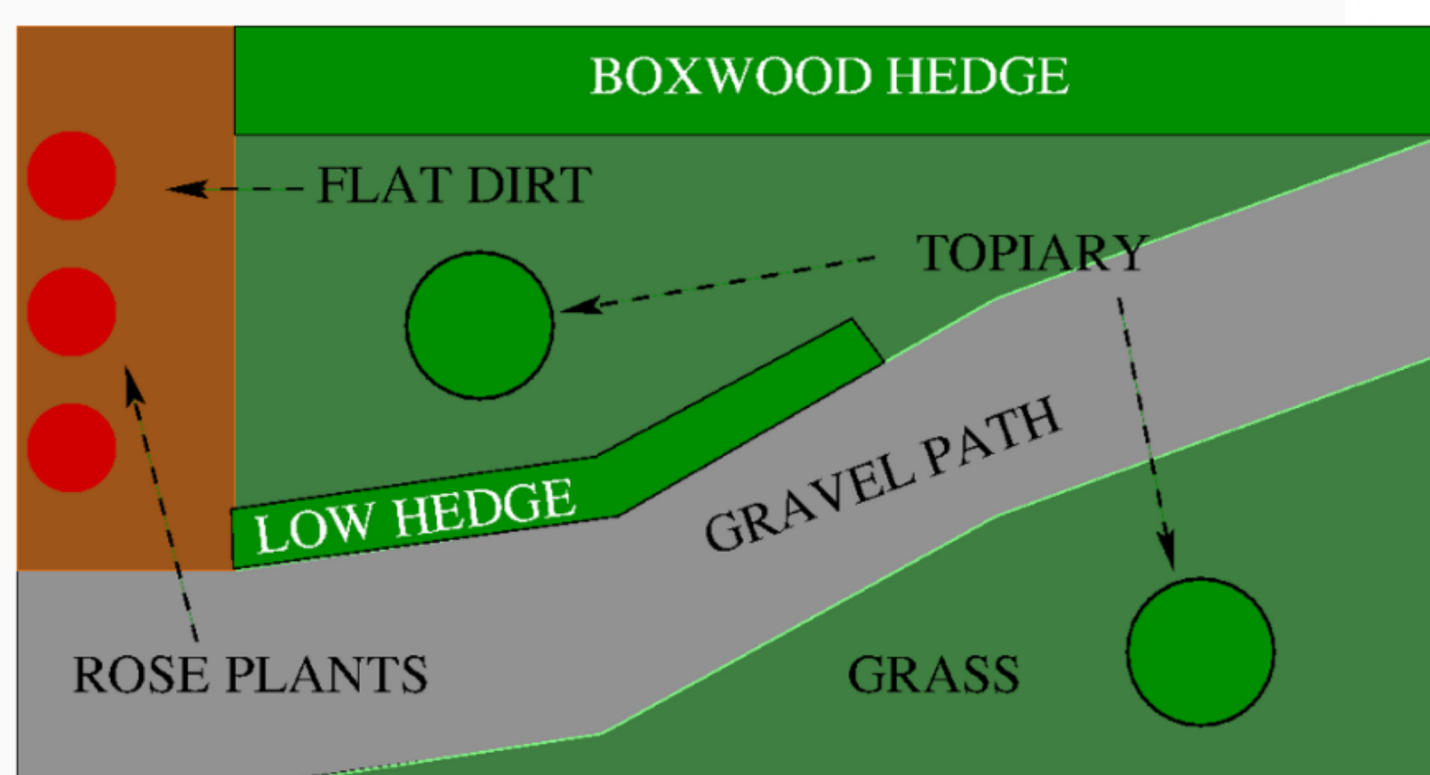
Lawnmower platform



Robotic arm



Custom trimmer tools



User-sketch of the garden



3D vision sensing and servoing

Objectives



- ▶ Robot and target localtion
- ▶ Robot navigation over varying terrain
- ▶ Shape analysis of garden objects
- ▶ Visual servoing of the robot and cutting tool

Innovation

- ▶ Garden robotics application
- ▶ Novel clipping actuators
- ▶ Automatic gardening platform
- ▶ Multiple 3D color sensor fusion
- ▶ Compliant servoing



Acknowledgements: EC Horizon 2020 grant 688007, Jan 1, 2016 - Dec- 31, 2019.