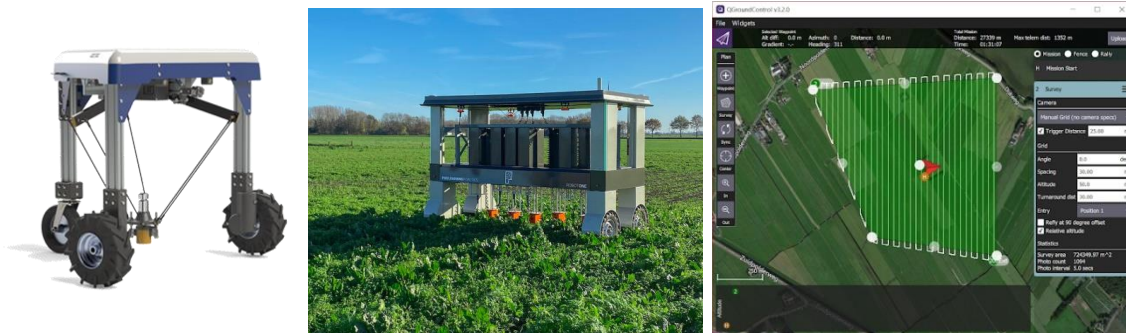


Graduation or Internship Assignment: Agricultural Path Planning for Mobile Robots

In the Netherlands, several agricultural robots are being developed for weed removal or other agricultural tasks. To plan the path that the robots should drive we need specific “agricultural planners” to cover a field. You see an example of such a path on the right.



In this assignment you select a suitable software framework to develop the planners in. One idea is to look into QGroundControl. That is planning software written in Qt/C++ to plan drone missions. We already have experience in developing custom planners in QGroundControl. Another approach might be to look into web-based frameworks (e.g. farmmaps.eu, AgriRouter or other online tools), to make the software available from any browser.



left: Weed Whacker from Odd.Bot, middle: Robot One from PixelFarming, right: mission planning in QGroundControl

Task description

You start with an exploration of the agricultural planning problem. You will interview farmers and other agricultural experts and look into existing software for autosteering (e.g. Trimble Display Systems). Based on this information you know what the parameters for planning are. You also select what framework to use. The planner is implemented as a stand alone application or as a web application.

Practical Information

Student Profile: Applied Computer Science, Computer Science (HBO-ICT), Electronics, Mechatronics (with interest in software aspects of robotics)

Duration: February 2022 – July 2022

Compensation: 230 euro per month, before taxes

Contact Person: Wilco Bonestroo, w.j.bonestroo@saxion.nl, 06-13001996

More info on planning for agriculture

De Bruin, S., Janssen, H., Klompe, A., Lerink, P., & Vanmeulebrouk, B. (2010). *GAOS: Spatial optimisation of crop and nature within agricultural fields*. In The International Conference on Agricultural Engineering, Towards Environmental Technologies (AgEng2010), Clermont-Ferrand, France, 6-8 September, 2010 (pp. 8-8).