

Fields of use

Agriculture, Food
production

Current state of technology

Prototype

Intellectual property

Knowhow

Developed by

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Reference

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Background

Agriculture is facing the challenge of increasing demand for food, and the agri-food industry already uses large areas of land, water and contributes to greenhouse gas emissions. One of the key market sectors is greenhouse food production. Due to the complexity and variability involved in the care and production of crops, many tasks are still carried out manually. Due to unfavourable working conditions (monotonous, stressful and repetitive tasks), there is a shortage of workers in the sector and labour costs are rising.

Description

The invention addresses the robotisation of greenhouse tasks, primarily in tomato production, but the technology will also be suitable for the production of other crops (cucumbers, peppers) with minor adaptations. We are developing a modular robotic platform for plant and fruit monitoring to predict crop yields and for plant manipulation to reduce the physical workload of employees.

Key advantages

- Method for precise localisation of a mobile robotic system inside a greenhouse (95% reliability)
- Upgradability of the platform with robotic manipulator, sensory system and plant lowering algorithms (90% reliability)
- Estimation of tomato ripeness and volumes (90% reliability)
- Detection of plant damage caused by diseases or pests (between 70-80% reliability) for quick and appropriate containment of undesirable phenomena.

