AI-Autonomous Robots for Agriculture – Weeding with Laser

WeLASER Summer School

Introducing the demo

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CSIC Consejo Superior de Investigaciones Científicas · FUTONICS · LZH Laser Zentrum Hannover e.V. · University of Copenhagen · AGREENCULTURE Smart robots for smart farming · COAG · Alma Mater Studiorum Università di Bologna · IETU Instytut Ekologii Terenów Uprzemysłowionych · Ghent University · van den borne aardappelen

Demo Organization

- **Demonstration fields:**
  - ❑ Autonomous navigation in the crop fields
  - ❑ Mission setup and launch: interaction with the robot

- **The high-power laser system is not currently functional** 
  - ❑ Distribution of the different subsystems
  - ❑ Composition of the subsystems (laser, implement)

- **WeLASER subsystems and training:**
  - ❑ Training to create and launch a mission
  - ❑ Training for the creation of maps

Demo Organization

- **Demonstration fields:**

Demo Organization

- **Demonstration fields:**
  - ❑ Autonomous navigation in the crop fields

20 x 20 meters fields

Sugarbeet18
(infested with weeds)

MaizeV6
(treated with herbicides)

Sugarbeet09
(*Emergence*)

MaizeVE
(*Emergence*)

Demo Organization

- **Demonstration fields:**
  - ❑ Autonomous navigation in the crop fields
    - ❖ Perform a mission in the sugarbeet18 field
    - ❖ Perform a mission in the maize V6 field
    - ❖ Observe crop detection in these two fields
    - ❖ Observe the GUI

Demo Organization

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Raw RGB front camera

SCAN ME

Crop detection

SCAN ME

Demo Organization

- **Demonstration fields:**
  - ❑ Mission setup and launch: interaction with the robot
    - ❖ Understand the map
    - ❖ Understand the GUI
    - ❖ Understand the safety procedure for launching a mission

Demo Organization

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Demo Organization

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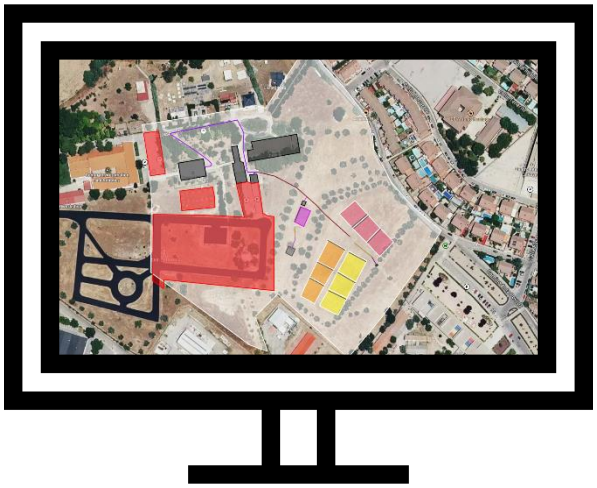

Demo Organization