Service ID S00135

Location Netherlands, Remote

Provision of a virtual playground for robots

Provider service

Wageningen University WUR

Link to content

https://www.agrifoodtef.eu/services/provision-virtual-playground-robots

Type of Sector

Greenhouse, Horticulture

Accepted type of products

Data, Software or AI model, Other

Type of service

AI model training, Collection of test data, Data augmentation, Performance evaluation, Provision of datasets, Test design, Tes

Description

The service consists of a photorealistic digital greenhouse environment, built in a game engine. The greenhouse is configurable to different sizes, light conditions (sun, supplementary lighting) or row spacing. In the greenhouse different crops can be placed to either test AI detection networks or complete robotic systems, as there is a ROS2 integration available. The environment is made in a way that physical properties of the objects have influence on other components or robot interactions.

How can the service help you

To train and test a detection network, a big annotated dataset with high variability is required. Using the virtual environment it is easy to create different circumstances to generate photorealistic synthetic data to train or test AI detection networks.

Additionally, by incorporating the customer's robot into the environment, it becomes possible to run unlimited test repetitions in the greenhouse—something that isn't feasible in real-life scenarios, where, for example, a specific fruit can only be harvested once.

How the service will be delivered

The virtual testing environment consists of standard configurable elements.

Therefore, there are ample opportunities for costumers to design the environment according to the required situation.

As the environment does not include all robots by default, costumers' robot should be implemented if it is required to test interaction of the robots in the environment itself.

Service customisation

The service operates in a fully digital environment, making it independent of any physical location.

The outcome of the tests are depending on customer requirements and therefore need to be discussed upfront. The outcome could consist of an annotated dataset, performance evaluation of an AI detection network or performance of a robot in the greenhouse.