

# CYBATHLON 2024

## Assistance Robot Race



### Points

Pilots can achieve 10 points per tasks with a maximum of 100 points per run.

### Scoring

Pilots with the highest score and best time are rank best.

### Competition rule

All manipulations must be done by the robotic manipulator that is controlled by the pilot.

### Inclusion criteria

Pilots with severe impairment of both upper limbs.



## Tasks

### 1. MAILBOX

**Task:** Remove a parcel from a mailbox and transport it to a target location.

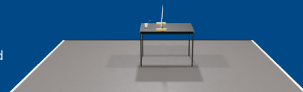
**Test:** Ability to grasp objects from within confined space.



### 2. TOOTHBRUSH

**Task:** Use the toothbrush.

**Test:** Ability to handle objects with heterogeneous properties – shape, compliance, and texture.



### 3. PICK UP

**Task:** Pick up a bottle from the floor and place it on a table.

**Test:** Ability to pick up and stow scattered objects on the floor to clear obstacles.



### 4. SCARF

**Task:** Hang a scarf on a clothesline.

**Test:** Ability to manipulate a soft fabric.

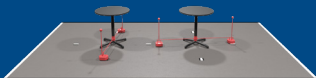


### 5. EATING

**Task:** User assistance robot to pick and eat an apple.

**Test:** Ability to safely manoeuvre objects and bring it in contact with the pilot safely.





## 6. CROWD

**Task:** Pass between individual pieces of furniture while avoiding robots that are roaming the task space.

**Test:** Ability to navigate static and moving objects, adjust speed, and avoid collisions.



## 7. SPICE UP

**Task:** Grab the correct object and set it on a predefined location.

**Test:** Ability to identify and fetch objects to place them in a given location.



## 8. DOOR

**Task:** Open, pass through, and close a door.

**Test:** Ability to open, pass through and close a door.



## 9. TOUCHSCREEN

**Task:** Navigate a touchscreen and order a predefined food item.

**Test:** Ability to manoeuvre user interfaces on touch screens.



## 10. DISHWASHER

**Task:** Empty a dishwasher.

**Test:** Ability to grasp fragile objects in limited space and place them in a given location.

# CYBATHLON ROB



**For a world without barriers!**

# maxon



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Schweizerische Eidgenossenschaft  
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STADTKLOTEN