



## Deliverable for experiment GAROTICS

*Green asparagus harvesting robotic system*

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STRAUSS  
UNIHB  
CWS

**SB**  
**Version 1**  
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## 1 Introduction

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The below provided Story Board has been developed and will be used as a guideline for the make of the project video. Instead of using hand made sketches explanatory pictures have been inserted to describe the story which is supposed to be told by the later video.

## 2 Story Board

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### Scene 1:

Left upper corner: ECHORD++ logo

Right upper corner: GARotics logo

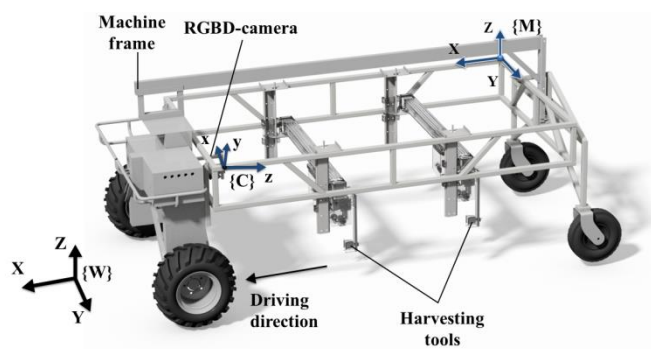
Middle:

1st line text: GARotics-Green asparagus harvesting robotic system

2nd line text: Project video

### Scene 2:

CAD model image of the system with the main parts marked



Middle bottom text (in the middle) Harvesting robotic system overview

### Scene 3:

Real photo of the system in an asparagus field



Middle bottom text (in the middle): GARotics harvester in the field with rain protection

#### **Scene 4:**

Real photo of the asparagus process seen by the camera. The storage box on the side of the machine



Middle bottom text (in the middle) Harvesting scene as seen by the camera.

#### **Scene 5:**

GARotics asparagus harvesting video, short (2-3 frames) of the side view of the machine while driving over the dam



#### **Scene 6:**

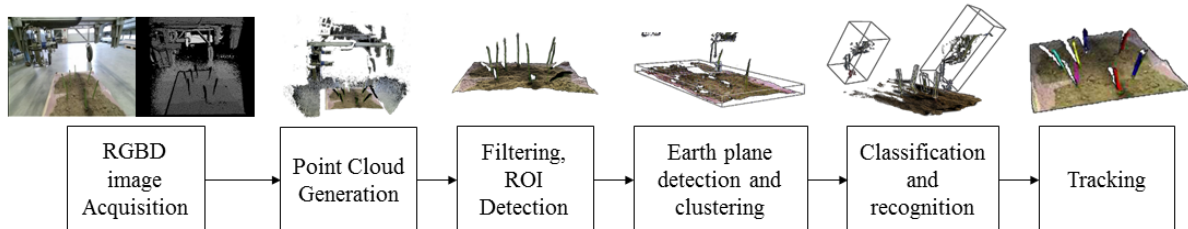
GARotics asparagus harvesting video, short (2-3 frames) of the front view of the machine while driving over the dam (short but showing at least harvesting of two stalks)



### Scene 7:

Top middle text: vision-based control of the harvesting process

3D-point cloud based asparagus tracking result of the “front view harvesting scene” shown in Scene 7. Starting from real image and depth image, via “point cloud generation”, “filtering”, “earth plane detection and clustering”, “classification and recognition” to show “tracking result” (after showing the image of tracking result in parallel two videos, real-world video and corresponding tracking result video)



### Scene 8:

Top middle text: Tracking result sent to Harvesting Controller that assigned detected asparagus to one of the two harvesting tools

Slow-motion (or zoomed) video of a tool approaching, grabbing and cutting an asparagus



### Scene 9:

GARotics asparagus harvesting video, short (5-10 seconds) of the front view of the machine while driving over the dam (short but showing at least harvesting of two stalks)



Middle bottom text (in the middle): Two harvesting tools in action...

### Scene 10:

The last scene of the asparagus harvesting

Top middle text: And harvested asparagus stalks are placed in two storage boxes, each corresponding to one of the two harvesting tools



### Scene 11:

Left upper corner: ECHORD++ logo

Right upper corner: GARotics logo

Middle:

1st line text: "Made by"

2nd line text: GARotics Consortium

3rd line text: "Strauss Verpackungsmaschinen GmbH" „Universität Bremen“ „C. Write & Son Ltd.“

4th line: logos of GARotics consortium's members located after their names in the 3rd line