# Volume estimation via integrating on a curve fitted point cloud

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add logos

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# Overall structure

**HiPEDS Group workflow**

- Cohort meetings on a regular basis
- Identify our goals and split into subgroups
- Integrate our progress
- Redefine goals

**Point cloud integration team overall checkpoints**

- Capture images
- Extract point cloud
- Fit a curve
- Find the volume inside

*More details in the next slides...*

# The problem and the goal

Figure: Royal vans

- **Problem:** Packaging in vans is not optimal → lots of empty space
- **Goal:** Fast estimation of available volume to ensure optimal packaging

# The hardware

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# Extracting the point cloud

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# Denoising the point cloud

# The ICP algorithm

# Curve fitting with Linear Interpolation

# Integration

$$\iiint_V f(x, y, z)\, dx\, dy\, dz \tag{1}$$

# Results

# References

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