

JEMARO Days 2025 – Autonomous Cone Avoidance

Conebusters

10/07/2025



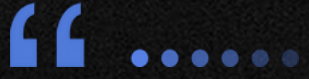
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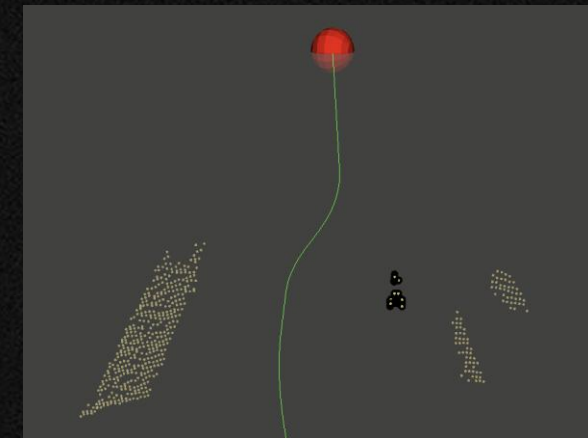
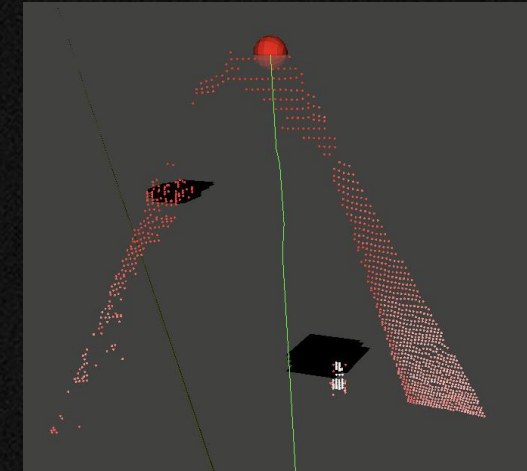
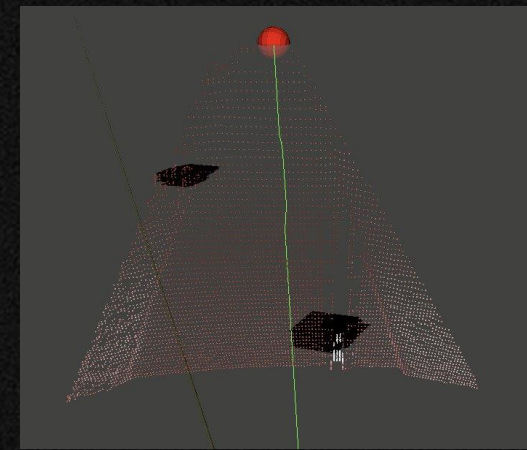
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Obstacle Detection

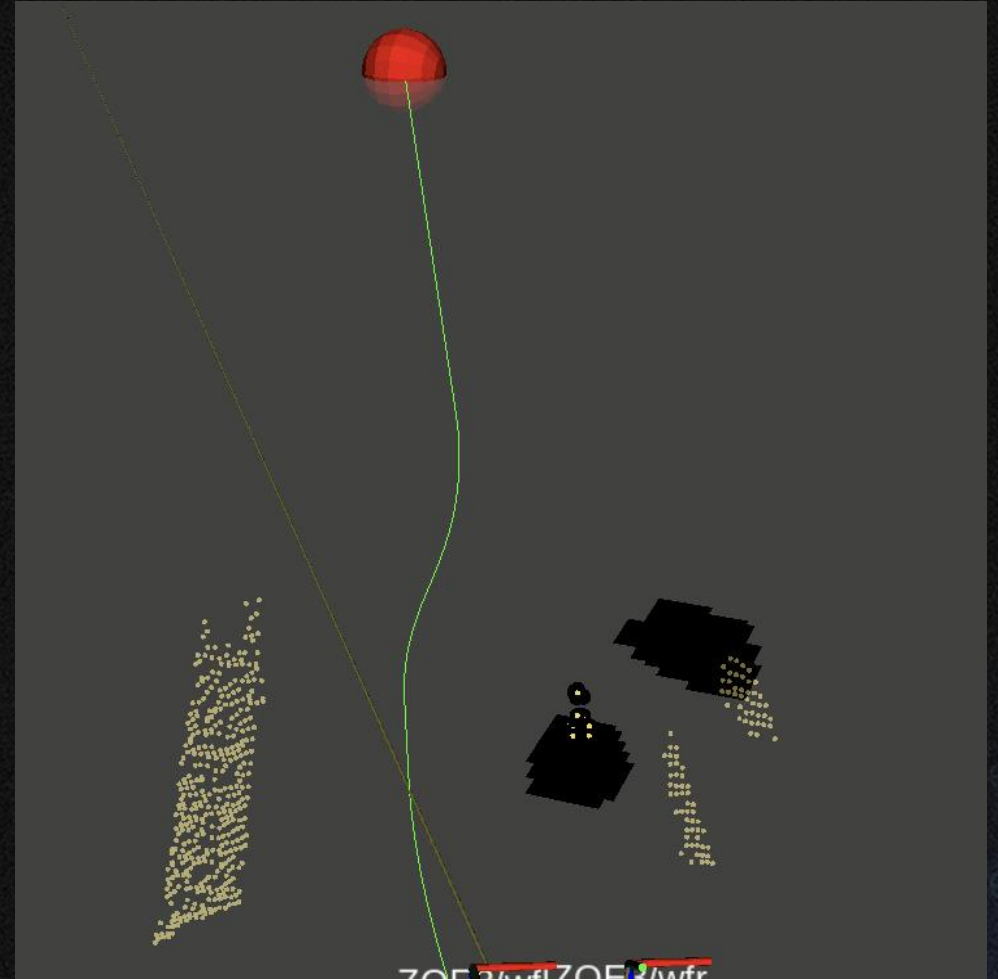
- Keep only region of interest
- Remove points in the road plane using RANSAC
-> retain them as road detection
- Euclidean Clustering
- Intensity Thresholding
- Geometric Thresholding
- Remove clusters that are outside the road area





Map Creation

- Multi frame tracking of clusters
- Draw the inflated area on the occupancy grid map.
- (Draw road points as white)



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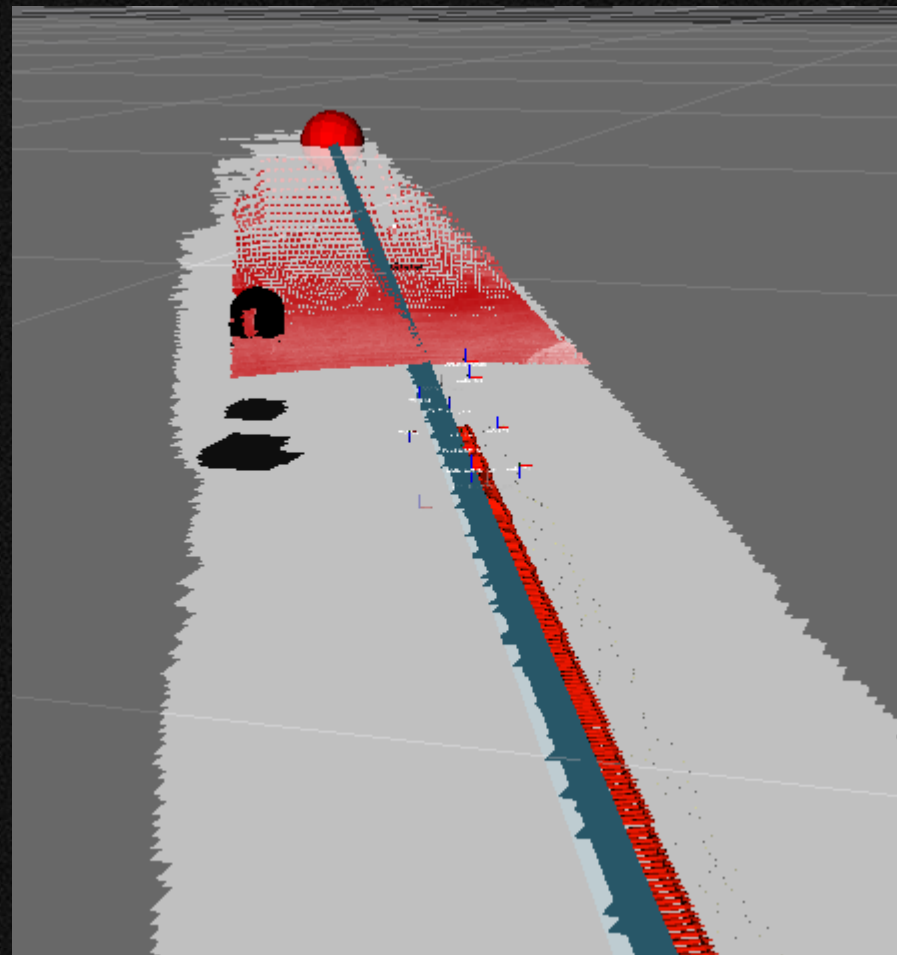
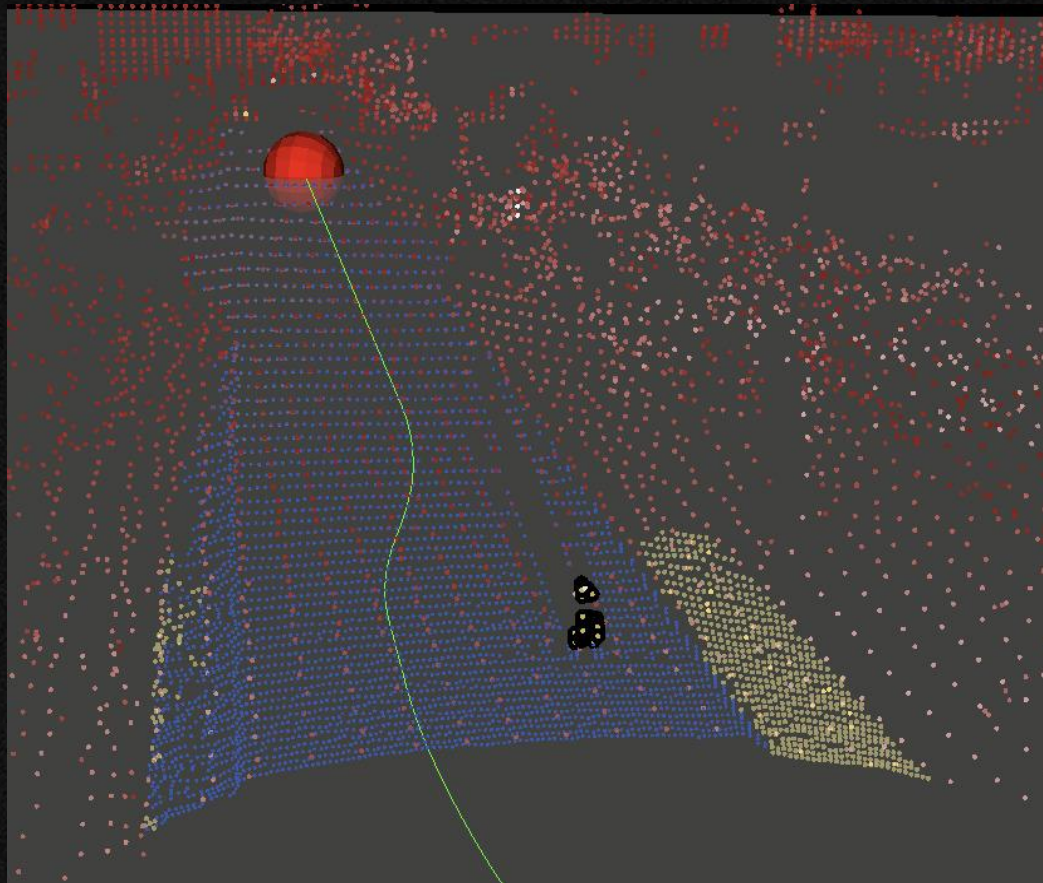
Final Visualization



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Road detection



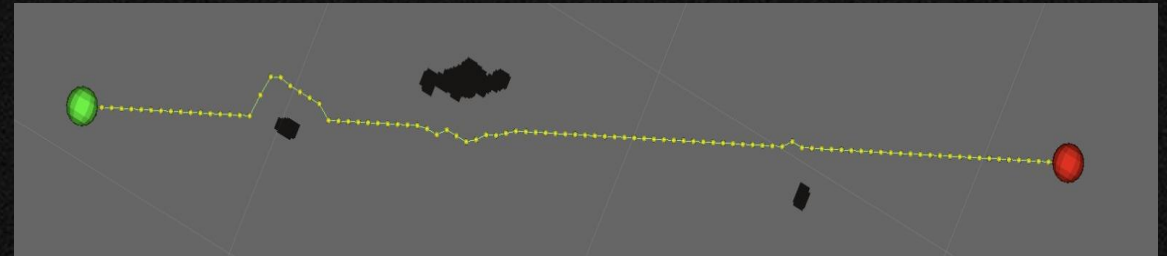
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Path Planning

1. Subscribe to the map
2. Each time new data is received:
 - Generate a straight path
 - Check whether there is an obstacle within the specified distance around each point
 - Shift the point to the left / right until no obstacle
 - Fill the gaps
 - Smoothing
3. Publish the generated path



After avoiding obstacles



After filling the gaps



After smoothing

Thank you.

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