Computer Vision: Remove human figures from point cloud

Context:

Currently, one input to the Navigation software is a 3D point-cloud obtained from the LiDar of the obstacles surrounding the rover. However, at the competition, we noticed that when the surroundings are crowded. The rover has more difficulty navigating between them as it keeps considering people as static obstacles.

To address this, we would like to separate the human figures from the current LiDAR input to be able to handle dynamic obstacles differently from the static ones.

Project Description:

The objective of this project is to enhance autonomous navigation of a rover by eliminating human figures that obstruct path planning and hinder cost map generation. Therefore, the goal of this project is to be able, given a point cloud from the LiDar and images from the camera feed of the rover, to output a new point cloud with the human figures removed from it, using ML Techniques and computer vision.

Tasks:

- Data cleaning
- Research and implementation of a model to perform segmentation on human figures on a point cloud
- Try different combinations of data: with or without the camera feed
- Train a model on the removal of the segmented human figures from the point cloud

Contact:

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