Exercise 2: Detecting and Braking

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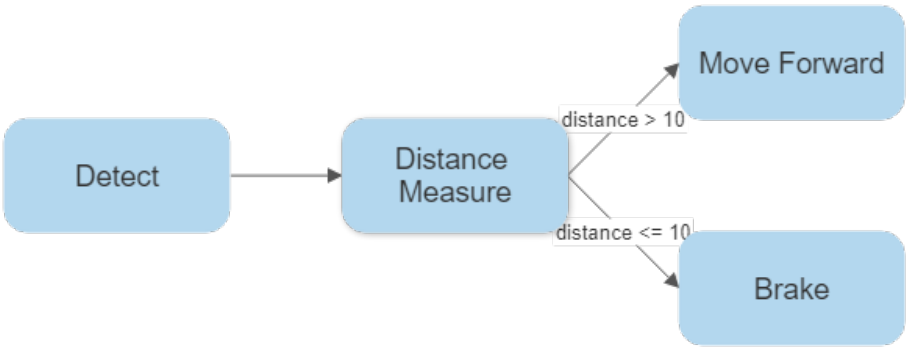
Purpose

In this exercise, the main objective is to design a system allows the vehicle to detect persons and brake when detecting a person.

Method



Detect: Camera YOLO pre-trained network is used to detect pedestrians, a bounding box was returned as detection information. And the mean value of depth values in this bounding box was calculated as the distance value from the vehicle to the pedestrian. The CvBridge() is then used to send this distance value to ROS.

Distance Measure: Get the distance from pedestrians obtained through subscribing topic object_detection in ROS and perform a simple judgment on that distance.

Move Forward: If the detected distance is larger than 10 meters, the system will publish message to accel_cmd to keep the vehicle moving forward.

Brake: If the detected distance is less than or equal to 10 meters, the system will publish message to brake_cmd to control the vehicle to brake.

Video Link

Outside view: https://www.youtube.com/watch?v=IF6biwbjXCwlist=PL5IM62rCQfXrOYlQUh9B-AyZ2Xzz-sQe6index=2exercise 2 vision 1
In-car view: https://www.youtube.com/watch?v=IqJil8BGw9slist=PL5IM62rCQfXrOYlQUh9B-AyZ2Xzz-sQe6index=3exercise 2 vision 2