

CS 123: Group 2

Guide Pupper

A Seeing-Eye Quadruped to Aid the Visually Impaired

Only 2%

of visually impaired individuals
in the US have guide dogs.

Walking faster.

Avoiding obstacles.

Following instructions.

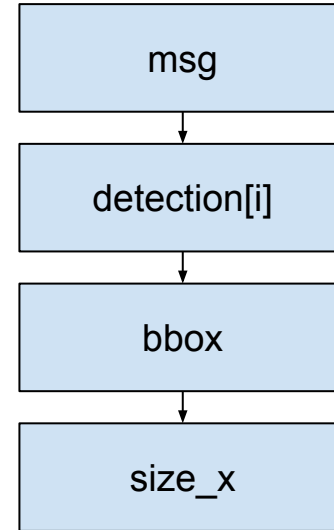
Guide dogs are scarce due to the
time-consuming training process
and relatively short duration of
service.

The Goal

Guide Pupper should detect obstacles, navigate around them, and follow natural commands.

Step 1: Obstacle Detection

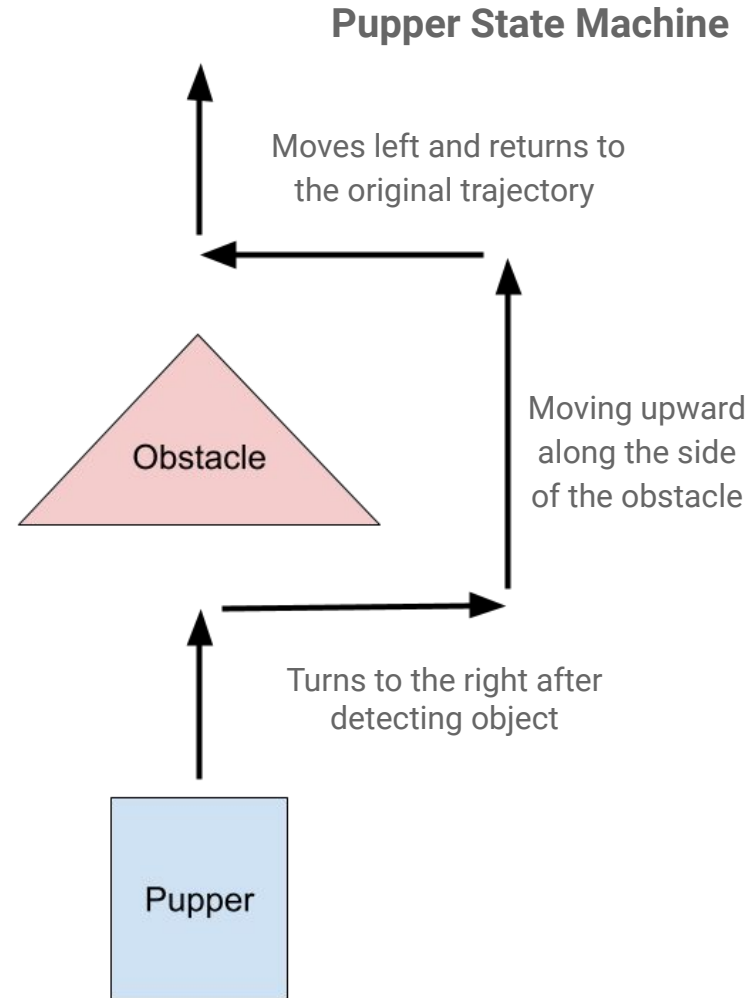
We use the the camera mounted on pupper to obtain all of the detected objects. We then identify the width of these objects relative to the camera frame.



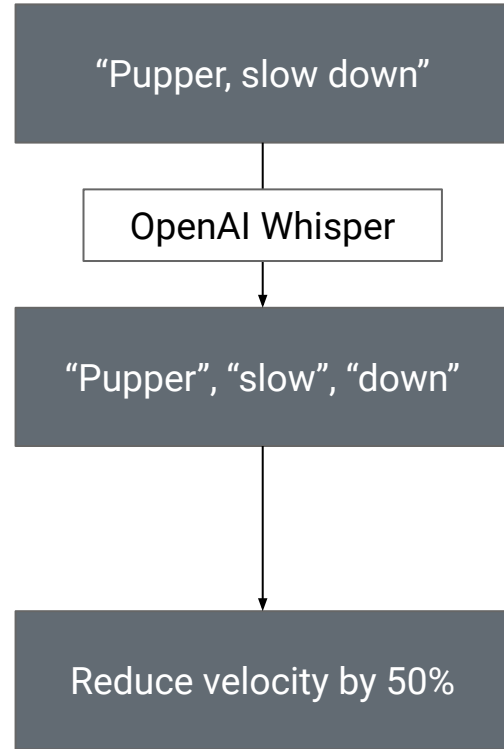
We then tune a threshold to determine if the object is in the way of Pupper (i.e. if the ratio of size_x to camera width is greater than 0.08).

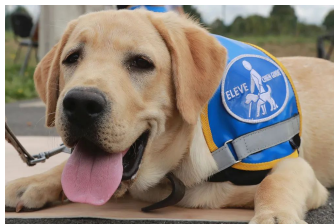
Step 2: Re-routing

Pupper vocalizes
how to avoid the
obstacle



Step 3: Responsiveness





**Obstacle
Avoidance**

