School of Engineering
Department of Electrical and Computer Engineering

Capstone Design Project : Abstract and Info

Project Number:  S19-31

Project Title:  Buddy Bot

Project term:  Spring 2019

Members:
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Five keywords that will help to classify the project scope:

- Robotics
- Artificial Intelligence
- Computer Vision
- Speech Recognition
- Human Interaction

Abstract:

Our project is to develop an autonomous service robot that is capable of performing tasks similar to that of a seeing-eye dog. We plan to market our robot as an alternative for service animals, focusing on seeing-eye dogs, but in the future will help other disabilities as well. Currently, the training process for service animals can be very time consuming, expensive, and different per animal. By making an autonomous robot alternative, we will be able to deliver a consistent solution that is much more cost effective and faster to produce while avoiding all of the hassle of training and assigning service animals.

The functionality of our robot will include navigation, obstacle avoidance, hand gesture recognition, and voice command recognition. The robot will be able to navigate through an unknown environment with obstacles blocking its path while guiding a human companion to a designated goal. We plan on retrieving our sensory data from a LIDAR and an Intel RealSense camera which will provide us with a three-dimensional point cloud that can map the robots surroundings. We will be using a software library called ROS (Robotic Operating System) in order to implement our control algorithms including S.L.A.M, navigation, and collision avoidance. Based on either voice or hand gesture, the robot will also be able to perform commands like move forward and backward, rotate in place, or follow a person.