Perception Based Tracker Robot for Following Objects of Interest

Team Name

Authors: Akshay Kumar, Chintan Desai, Kishor Sabarish, Sagar Panchal

Advisor: Prof. Michael Gennert

Worcester Polytechnic Institute

RBE549 Computer Vision Course Project

Abstract:

There are many cases in the world which demand a robot to follow a specific object for various purposes, such as in a warehouse setting for point-to-point delivery, in an open world for human assisted last mile delivery, or more recently, as a personal robot that does the heavy lifting for you. In this work, we propose to implement a visual tracking system for an object of interest - a unique marker or a person - enabling it to follow the object of interest. The work includes: a) Visual tracking and trajectory prediction of objects such as fiducial markers, human lower bodies and vehicles. b) Differentiating between similar objects in a single frame to decide on which object to track. c) Use NVIDIA Isaac sim for simulating the perception and behavior of the robot

Introduction:

This section will contain a description of the need for the project and use cases.

Literature Survey:

This section will describe existing implementations for the problem we are trying to solve.

Materials and Methods:

This section will list and describe the various software, libraries, tools and algorithms used.

Results:

This section will report the veracity of output obtained and discuss ways to improve the results.

Future Work:

This section will describe possible future approaches that could be used to improve the results.

Authorship Table:

This section would include the work done by individual authors.

References:

Citations for publications and resources utilized.