Third Year Project Progress Report

November 16, 2019

Project Introduction/Specification

Statement

In Short:

Implementing Computer Vision algorithms to allow for robot navigation using the camera feed as the primary perception.

Aims:

The aim of this project is to utilise the camera more efficiently as cameras are typically cheap sensors and this helps make robotics more affordable as a discipline, or at least provide additional ways to aid internal sensor data and provide additional data points of belief in the robot's current pose.

Objectives:

- Move towards an object that is recognised in the environment.

- Acknowledge obstacles in the environment and attempt to avoid them.

- Attempt to acknowledge more natural obstacles.

- Attempt to use the camera feed to aid with pose estimation.

Progress made so far

ROS

Overview of the Robot Operating System

The Robot Operating System (ROS) is a meta-operating system that runs on top of a regular operating system. It is designed to be highly modular (though one could at times argue too modular) and typically run in a "Publisher -¿ Subscriber" model, a unit of executable is referred to as a node and is typically recommended as a reusable task, for example "sensor drive, sensor data conversion, obstacle recognition, motor drive, encoder input and navigation"[1]

Future plans

Management

Bibliography

[1] Leon Jung Darby Lim Yoonseok Pyo, Hancheol Cho. *ROS Robot Programming (English)*. ROBOTIS, 12 2017.