Vision component: Object Detector

DRAFT - Technical Instructions

1. Installation

Install the CAST-framework. Then activate sub-architecture “vision.sa” for installation within the cast-framework.

Necessary libraries for installation in Ubuntu 9.04:

- TBA
- ...

2. Configuration

There are two configuration files, `vs3.cfg` and `calibration.xml`, at

./subarchitectures/vision.sa/src/c++/vision/components/ObjectDetector/cfg/

To configure the perceptual grouping tree of the object detector, open vs3.cfg and enable/disable the different Gestalt principles with the value 1/0.

To file calibration.xml is used for the camera calibration, if the camera parameters are not available from the video server. The user has to define the image size, intrinsic and distortion parameters as well as some reference points, which are describing the relationship between image points (pixel) and 3D world points (mm).

3. Start object detector demo program

Start first the cast server in a client console and than start in another console session the client program:

```
cast-server

cast-client subarchitecture/vision.sa/config/detector.cast
```

4. Usage and display commands

The object detector aims to detect predefined Gestalts and basic objects like cubes, cones, cylinders and balls using a perceptual organized system . After the start of the detector, a display shows the incoming images from the video server with the extracted edges, which are the basic visual features for the whole perceptual grouping system.

There are several display commands to show the different estimated Gestalts with a different degree of detail:

- '^' … Show all detected objects.
- '1' … Show all detected cubes.
- '2' … Show all detected cylinders.
- '3' … Show all detected cones.
- '4' … Show all detected balls.

- '5' … Show all detected ellipses.
- '6' … Show all detected segments (default value).
- '7' … Show all detected lines.
- '8' … Show all detected rectangles.
- '9' … Show all detected flaps.
- 'd' … Enable/disable display.
- '+' … Increase degree of detail (default = 0).
- '-' … Decrease degree of detail.

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