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## Lab 5: Object Tracking

### Learning Outcomes

- use Image Moments for Tracking
- use HAAR Cascade Classifiers for Face Detection

### Section 1: Requirements and Design

In this lab, you will build a rosnode that detects and tracks objects and human faces.

### Section 2: Installing the Lab

To perform this lab, you will need to get the `moment_tracker` and `face_tracker` templates into your catkin workspace. First ensure that your Jet has internet access by connecting it using WiFi or ethernet. Next ssh into Jet and enter the following command:

```
wget http://instructor-url/lab5_object_tracking/code.zip
```

Where the url should be replaced by the URL provided by your instructor. Now unzip the lab:

```
unzip code.zip
```

Move the resulting folder into your catkin workspace:

```
mv moment_tracker ~/catkin_ws/src/ -r
mv face_tracker~/catkin_ws/src/ -r
```

Delete the zip file:

```
rm code.zip
```

To build the code, use the following command when you are in `~/catkin_ws/`:

```
catkin_make && source devel/setup.sh
```

To run the nodes, first launch the Jet platform (see lab2 for instructions), then use the commands below:

```
roslaunch face_tracker face_tracker
roslaunch moment_tracker moment_tracker
```

### Section 3: Object Tracking

### Section 4: Face Tracking

### Section 5: Optical Flow