Calibration

AR Track, Week 3

This Week

- Now that your rover is built, we need to calibrate the motors and sensors
- Calibrate motor speed
- Calibrate camera intrinsics
- Calibrate camera to body transformation
- Calibrate IMU values (Optional)

You will need:

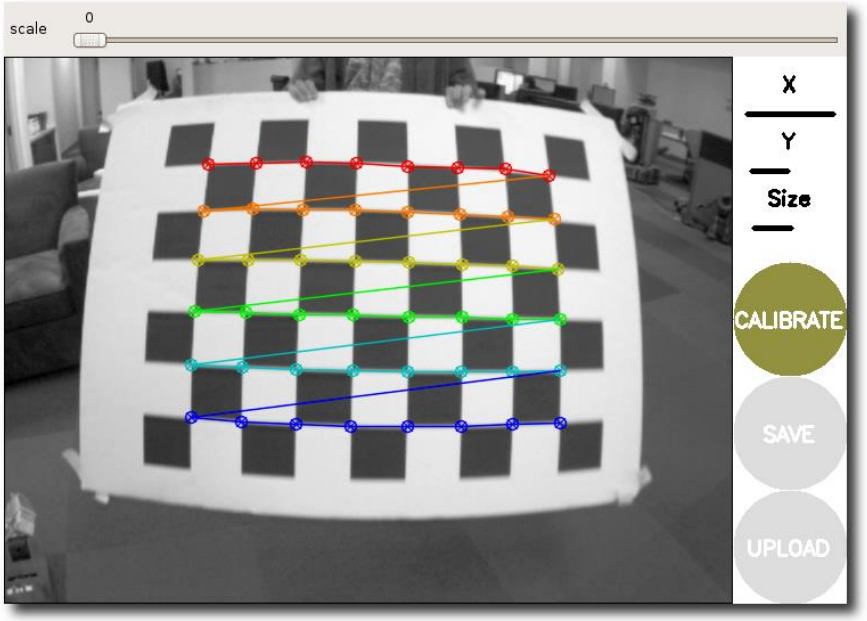
- Completed rover
- HDMI-compatible screen, keyboard and mouse
- Printer

Motor Calibration

- Every set of motors is made slightly differently
- Need to tune motor gain so that telling the robot to move forward at 10cm/s results in actual movement of 10m/s

Camera Calibration

- In this course, we will be using AprilTags to observe the world from images
- To get accurate pose information, we need to know the focal length and principal point of our camera
- Calibration also estimates the distortion parameters of the camera, to allow us to undistort it (we will not be using this)



http://wiki.ros.org/camera_calibration/Tutorials/MonocularCalibration

Camera to Body Transformations

- We need to know the translation and rotation between the camera and imu to the robot body
- These values allow us to transform the camera and imu measurements into the body frame