Sensor Configuration and Calibration Setup Assistant

Paul Hvass
PlusOne Robotics
Overview

Motivation/Objective

- **Motivation:** The current industrial calibration package is extremely difficult to use. Setting up a calibration routine involves manually editing multiple YAML files and understanding which cost functions to pick for each type of calibration.
- **Objectives:** Create a graphical user interface for the *industrial calibration* package with preset configurations for the most common calibration cases to simplify the calibration process.

Approach

- Create a graphical library to allow drag and drop 2D and/or 3D imaging sensors and calibration targets into the 3D environment
- Add preset calibration cases of the most common scenarios
- Allow a person whose name isn’t Dr. Chris Lewis to calibrate their work cell without getting a headache.

Metrics for success:

- Library populated with existing sensor configuration packages and target models.
- Demonstrate the intrinsic calibration of an individual sensor.
- Demonstrate the extrinsic calibration of a single sensor and target.
- Demonstrate the extrinsic calibration of a multiple sensors with a robot holding the target.

Schedule

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<thead>
<tr>
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<th>M1</th>
<th>M2</th>
<th>M3</th>
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<tbody>
<tr>
<td>Clean Codebase</td>
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<tr>
<td>Add Kinematic Calibration Features</td>
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<tr>
<td>Setup Assistant GUI</td>
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<tr>
<td>Testing</td>
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Global ROS-I Community Meeting
Common Use Cases

Run Preset Calibration Routine

Kinematic Calibration
- Camera on Robot
  Target in Workspace

Intrinsic Calibration
- Camera on Robot
  Target in Workspace
- Camera and Rail

Extrinsic Calibration
- Single Camera
  Single Target
- Multiple Cameras
  Multiple Targets
- Single Camera on Robot
  Target(s) in Workspace
- Target on Robot
  Camera(s) in Workspace

Instructions
Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.
# Calibration Setup Assistant

<table>
<thead>
<tr>
<th>Features</th>
<th>Current</th>
<th>Proposed</th>
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<tbody>
<tr>
<td>2-D Camera Calibration</td>
<td>✓</td>
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<tr>
<td>3-D Camera Calibration</td>
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<td>✓</td>
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<tr>
<td>MoveIt Motion</td>
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<td>✓</td>
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<td>Simulated Calibration</td>
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<td>Software Triggering of Sensors</td>
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<td>Kinematic Calibration</td>
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<td>Updated Tutorials</td>
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<td>Simple GUI</td>
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<tr>
<td>Detailed Documentation</td>
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Contact Info.

Paul Hvass
Co-founder and COO
PlusOne Robotics
601 Delaware St.
San Antonio, TX 78210

Email: paul.hvass@rosindustrial.org

Web:
- https://github.com/ros-industrial/industrial_calibration
- plusonerobotics.com