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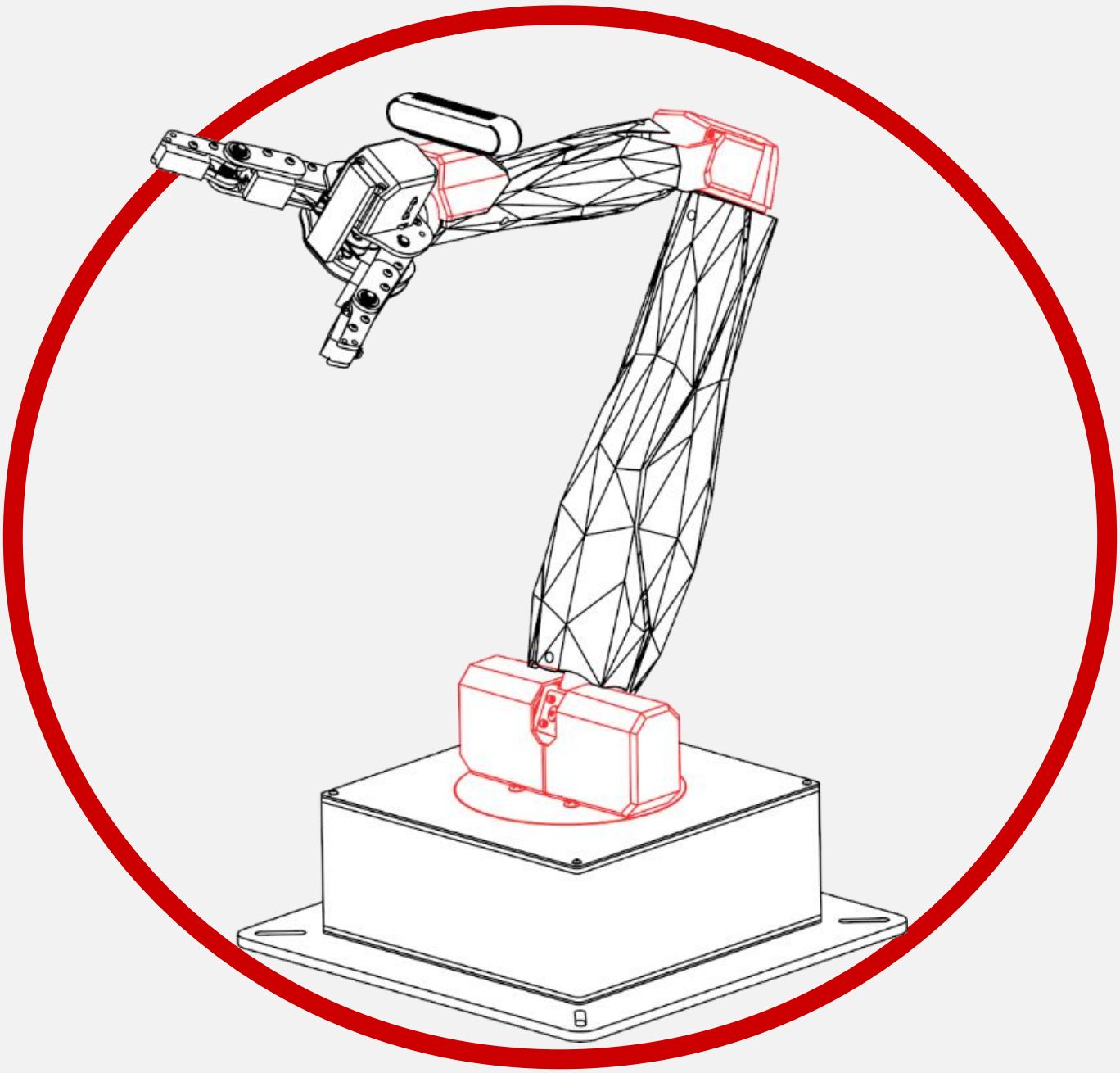

QArm

Image Acquisition

V1.0 – 13th February 2025

For more information on the solutions Quanser offers,
please visit the web site at: http://www.quanser.com

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Caution

This equipment is designed to be used for educational and research purposes and is not intended for use by the public. The user is responsible for ensuring that the equipment will be used by technically qualified personnel only. Users are responsible for certifying any modifications or additions they make to the default configuration.

QArm – Application Guide

Image Aqcuisition

Why explore Image Acquisition and Processing?

Cameras project information from a 3-dimensional world into a 2-dimensional plane. Representing this information mathematically in a form that allow us to effectively and readily process it is vital to making higher-level inferences from the information, for example, the location of an object. In this lab, you will focus on representing the information acquired by camera in different structures and color spaces. This will set you up for future labs on detecting objects and manipulating robotic systems based on that information.

Background

The QArm content contains 3 labs that focus on visual servoing. The first one focuses on learning how to do image acquisition, the second one in object detection, and the last one focuses on visual servoing, which is moving the arm based on what the camera sees. This lab focuses on image acquisition and understanding the output and the parts of a digital image.

Prior to starting this lab, please review the following concept reviews (should be located in Documents/Quanser/4_concept_reviews/),

- Concept Review – Color Spaces

Getting started

The goal of this lab is to use the QArm camera to find the blob of the object of interest. A Simulink model will be used to read the image, add filters and finally find the blob.

Before you begin this lab, ensure that the following criteria are met.

- The QArm has been setup and tested. See the QArm Quick Start Guide for details on this step.
- You are familiar with the basics of Simulink. See the Simulink Onramp for more help with getting started with Simulink.