Project 3 - Robot Path Planning and Manipulation

Problem 1-3

A video of my robot planning a path, picking up an object from one bin, and depositing it into another bin can be viewed here: https://drive.google.com/file/d/1IKUp9WiTManavMyJ-78URn5WJGlY2f_7/view?usp=sharing

Problem 4

Dataset size: I used a dataset of size 300 (270 training images, 30 test images) to train my data segmentation model.
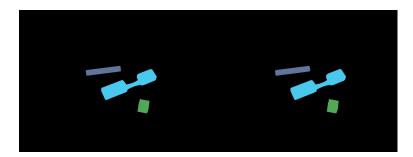
Test Loss: 0.00

Test Mean IoU: 0.99

Train loss mIoU: 0.00 0.99

Validation loss mIoU: 0.00 0.99

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checkpoint saved at epoch 20

epoch, model_miou: 20 0.9895541003173735

Ground Truth and Predicted Mask Image:

A video of my robot performing image segmentation, pose estimation, and then grasping can be viewed here: https://drive.google.com/file/d/1zDSlKqMBv-YJlnIND7MDj5Y8EgGL view?usp=sharing

A link to the folder is here: https://drive.google.com/drive/folders/1wrfNAqOaOu_U__UM6lSsDLduKV2vZ-Ie?usp=sharing