

Introduction to Robot Intelligence (CSCI-UA 480-073) Homework 2

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Submission Instructions

This project is due on **October 3, 2024, 11:59 PM**.

This is a hardware project. Submit a video showcasing the robot completing the specified task, and your solution code. The video should be roughly 60-90 seconds.

One member from your team must upload them as **two separate files**, with the video in `.mp4` and code in `.py` or `.zip` format. **You will be graded together as a team for all the robot homeworks. Include NetIDs of all team members in the submission.**

Project: Object Following

In this project, we will program the rover to follow an object.

- Choose a target object for the rover to follow, roughly the size of a football. Bright colors work better. (Experiment with different colors and shapes for your target object.)
- When the target object is out of the rover camera view, the rover should search for the object.
 - You are free to write your own search strategy.
 - For the video, manually move the target out of frame **twice** to show that the rover can search for and find the object.
- As soon as the target object comes into view, the rover should start tracking and following the object.

Resources

- (1) Color detection documentation: <https://docs.viam.com/tutorials/services/try-viam-color-detection/>
- (2) Follow a colored object: <https://docs.viam.com/tutorials/services/color-detection-scuttle/>

Grading

- (25) **Video:** In your video, show a live onboard camera view on the left, and an overhead view on the right. Follow this example video: https://storage.googleapis.com/docs-blog/tutorials/videos/scuttledemos_color-detection.webm.
- (45) **Following:** Clearly show that the rover can follow an object. You will be graded on the tracking quality and robustness.
- (30) **Searching:** Clearly show that the rover can search for and reacquire the object when it moves out of the camera frame. You will be graded on the search efficiency and success rate.
- **Do not plagiarize.** All teams involved in plagiarism will be penalized.