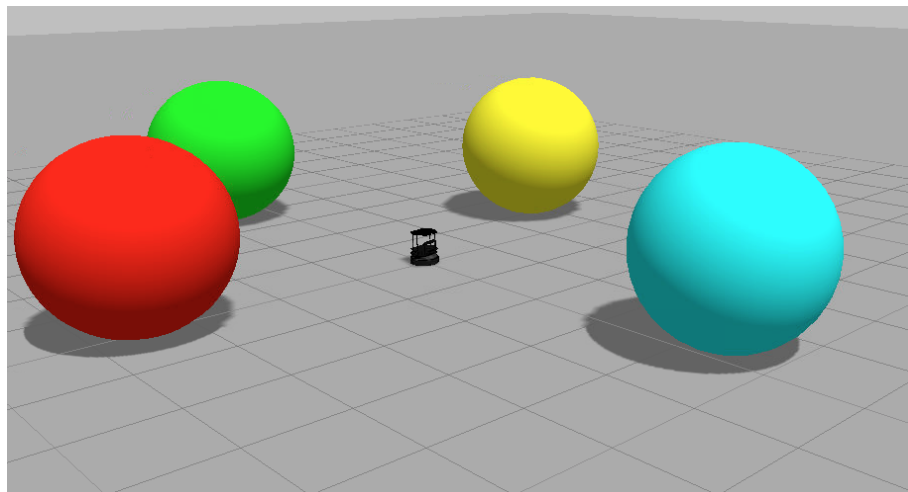
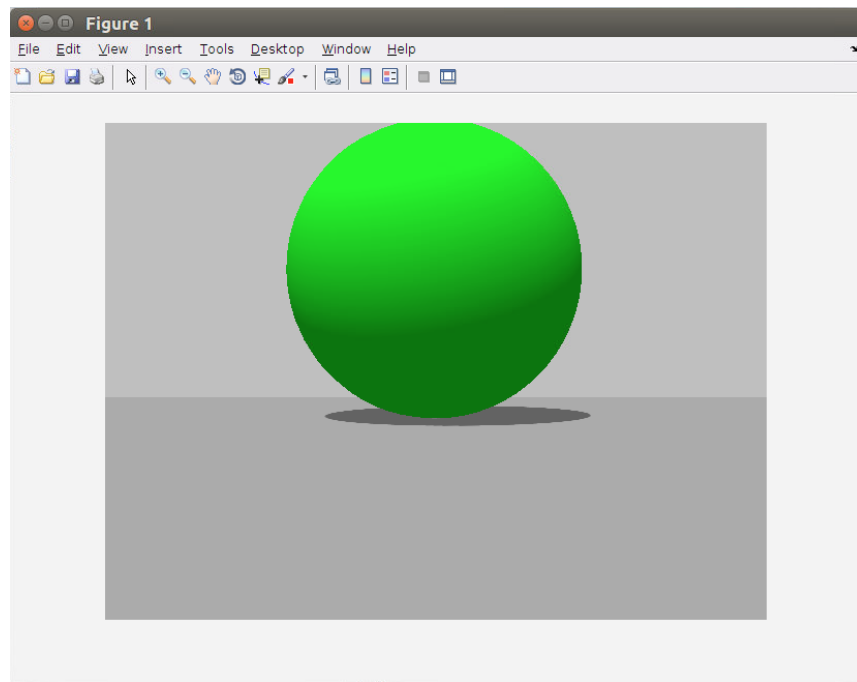


Lab 3: Color Detection and Tracking

Yecheng Xiang (X640545)

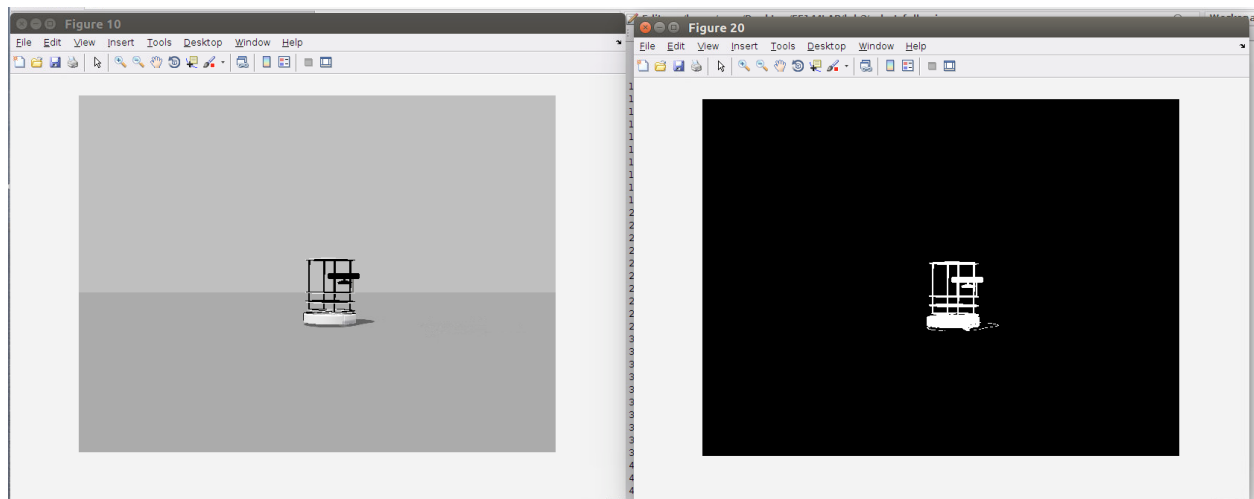
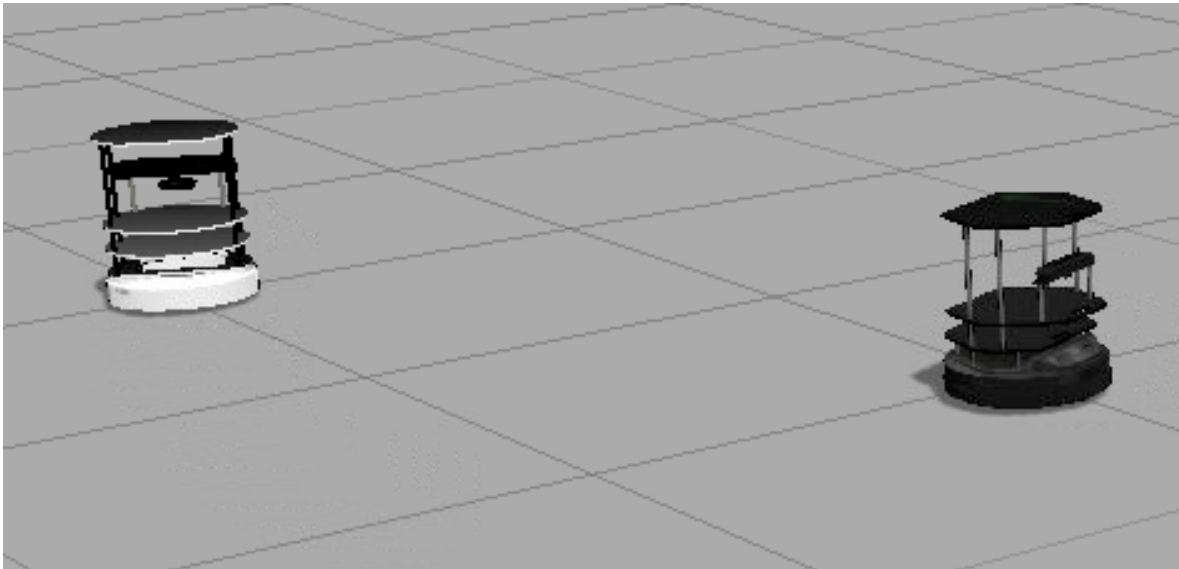
Part 1: Color detection in the HSV color space



Discussions

- My implementation worked after tuning the K_p value for the P-controller. HSV color space is better for color detection compared to RGB in this lab. And in matlab, it is quite convenient to convert the RGB matrix to HSV matrix.
- No significant latency should exist in the while loop, otherwise the control system will fluctuate and become unstable, so no delay function is needed in the while loop

Part 2: Robot Tracking



Discussions

- Using $(4000 - \text{area})$ as the error term for `lin_velocity`
- Using $(320 - \text{mean_col})$ as the error term for `rot_velocity`
- After tuning the `Kps` for both of the controller, the system works perfectly.