1. I used HSV threshold of lower_hsv = np.array([90, 50, 20]) and upper_hsv = np.array([140, 255, 150]), and for RGB I used lower_rgb = np.array([5, 5, 95]) and upper_rgb = np.array([120, 120, 255]) after some trial and error. HSV was by far the better choice, consistently tracking the object.
   https://drive.google.com/file/d/1K4FWOHTPAsXVZR-twvMgUKkpFjATgxNY/view?usp=sharing
2. When I change from having the ceiling lights in the background to turning my camera more downwards, it increases the contrast by removing the bright lights which in turn helps with the tracking. Also, when I shine my flashlight, it again reduces contrast on the image which hurts tracking.
3. Increasing the brightness helps because it just makes the color more intense/vibrant.
   https://drive.google.com/file/d/1mIKJlnNeC-ydL5S5UafAvL7eL90jn8QX/view?usp=sharing
4. The object is more resilient than the phone, since when I change the brightness of the screen it is literally changing the color being displayed.
   https://drive.google.com/file/d/19hdkwCMo-ePW11IsxJUUJ27-n556Z9mj/view?usp=sharing
   In this video, I first show my shift to the camera, which is red, then I shine a flashlight on my shirt. Then, i show my phone on the color orange on medium brightness, then dark brightness, then high brightness.