Requirement 28:

Based on information from one of the other groups also working on the NAO robot, we decided to investigate possibly upgrading the camera using a raspberry pi module. When speaking with the other group, they said that they were using the bot for a card game and needed the cameras to recognize cards. They found it had trouble recognizing playing cards when they were held more than a few inches away from the camera. This made us think that trying to have the bot recognize small hand gestures from a reasonable distance away would be troublesome. A possible solution to this problem is to use an external raspberry pi module. The current camera on the robot uses a 5 Megapixel camera with a video resolution of 640\*480 at 30 fps. One of our options (raspberry pi camera module v2) is a plug and play extension that uses an 8 Megapixel camera that can capture video at 1080p30, 720p60, and 640x480p60/90. Another option is the raspberry pi camera module v3. It boasts an 11.9 Megapixel camera and can record video in 1080p50, 720p100, and 480p120. It is essentially a direct upgrade from the v2. The two variations of raspberry pi cameras also share similar price points with the v2 being $24 on amazon and the v3 being $25. Based on the specs and price, it makes sense to choose the v3 camera for the better image quality and frames per second. Especially because it is at the same price point. The next step for us would be to test the robot’s vision ourselves for what we need it to do and assess if further action needs to be taken to address the camera.