Finally.py

getNaoImage(IP, PORT): get video screen of robot and save the image called camImage.png

shapeDetection(): Do circle detection and get the center of the circle, and calculate the position of the circle.

to adjust different camera, change the parameter here:

detected\_circles = cv2.HoughCircles(gray\_blurred,cv2.HOUGH\_GRADIENT, 0.1, 500, param1 = 70,param2 = 30, minRadius = 1, maxRadius = 175)

shapeDetection2(): for different shape detection but not used in our project.

getHeadAngle(IP, PORT): get the head of robot angle, API of NAO

setHeadAngle(alpha, beta): set angle of the head of robot

getDistanse(x, y, cameraID): calculate the distance to the Nao robot camera

angle.py(for this part, we not get the robot, so this part of the code should be changed)

mousePoint(event,x,y,flag,params): click the mouse to get point

getAngle(pointsList): get angle through three points

for this part, if using in robot is better to find harries corner, then get the position later use this code.

Here is a link I think could be help for you guys

https://docs.opencv.org/2.4/doc/tutorials/features2d/trackingmotion/harris\_detector/harris\_detector.html