

Sensors and Control for Mechatronics Systems

Tutorial 9

Question 1 : Visual servoing

1.1 : Calculate the camera velocity vectors for each case such that the squares in *image_1.png*, *image_2.png* and *image_3.png* obtained by an end-effector mounted camera, are centered and all edges are parallel to the X or Y axis in the image plane.

Use the following values:

Focal length = (400,400)

Principal point = center of the image

Z = 50

$\lambda = 0.1$

Use an appropriate feature detector.

1.2 : Identify the values of the linear and angular velocity components.

1.3 : Observe the effect of the desired size of the square on the camera velocity