Industrial robots

Example 1 : Inverse kinematics and velocity kinematics of SCARA robot

Let consider the robot given in Fig 1. Composed of four axes, the robot has a RRPR structure (known as SCARA structure, Selective Compliant Assembly Robot Arm). According to the posture (configuration) illustrated in Fig. 1, all the joint variables are null (zero).
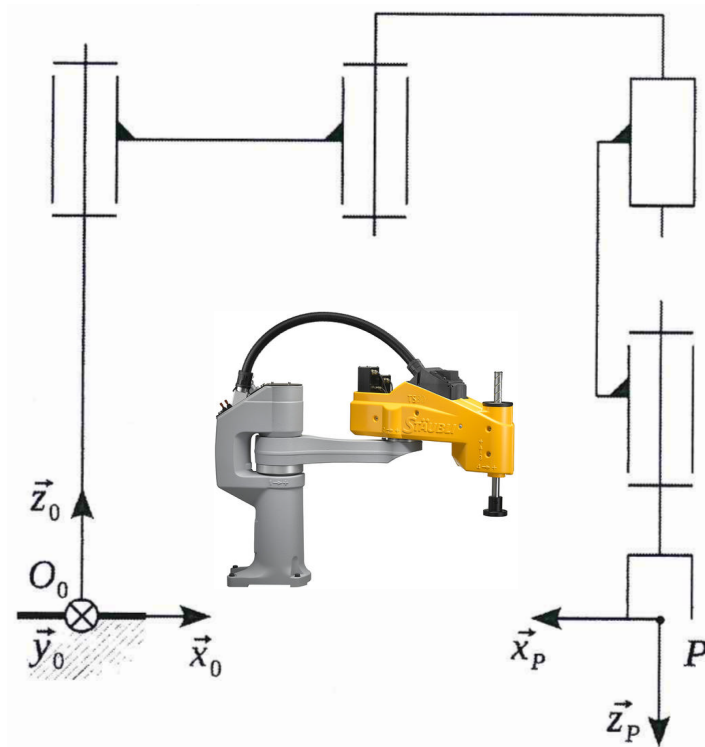

FIGURE 1 – SCARA robot

Based on tutorial 2 express :

    1.a the inverse kinematic model of the robot.
    1.b the Jacobian matrix of the robot and determine its singular configurations .