LAB 3: Planning the trajectory

Preparation:

Solve the inverse kinematics problem of the given robot manipulator considered in the first laboratory exercise by applying Pieper's solution.

Exercise:

1.Using the *hocook* function, generate the trajectory of the robotic manipulator, considered in the first exercise, which allows the robot to draw a given character (first letter of your name) on a board placed in its workspace space. First, set the starting and ending points of the trajectory and several connecting points of the trajectory. Add connecting points until the desired result is obtained.

2.Display the result with the *planecontact* function. For the tool tip path given by matrix *W*, the normal of the plane *n* and the distance of the plane from the origin *d*, this function shows those points of the path whose distance from the given plane < 5 mm. Display the obtained trajectory in 3D using the *plot* function.

3. Show the responses of all joint variables during the execution of the trajectory and their first derivative (velocities) and other derivatives (accelerations). Comment on the obtained results with regard to the requirements of continuity of the trajectory and its first and second derivatives and with respect to the given constraints speed or acceleration.

Report:
The report should contain:

A modified Python script surname_3.py that performs the tasks assigned in the Work on the exercise (LV3 - Planning the trajectory) and a written report with a description of the exercise and images obtained under points 2 and 3 of the work on the exercise. Keep in mind that if you changed something in the *planecontact* function, you should also attach it to the report.

Zip the files and upload them by April 27, 2023.