Experiment No: 4

Universal Robot UR10 E-series Collaborative Robot: Module IV Feature coordinates, Force Control, Palletizing

Outcomes:

Students will be able to

- create and move the feature in working environment
- understand the force control in single and multi-directions
- utilize the templates considering patterns, layers and separator for repetitive operation.

Description:

Many times, the working environment of robotic operation is not fixed or may be changed due to undefined reason. The result of small change in the environment may become the large change in the programme prepared for the robotic operation due to change in the actual position of the waypoints. This issue can be solved by considering the feature with respect to the working environment.

Another important parameter in the robotic operation is the force control. Proper direction and amount of force must be considered to complete the task successfully. If the task is same but with minor changes, it may be needed the separate programming for the individual operation. To overcome this type of situations, template should be used in the programming.

Students have to go through the following link for the virtual experience of UR10e and also for the completion of eSeries Online Training.

https://academy.universal-robots.com/online-training/e-series-online-training/

Students have to complete the following three modules of the eSeries Core Track Training.

1. FEATURE COORDINATES
2. FORCE CONTROL
3. PALLETIZING

Exercise:

1. Discuss the following with necessary diagram.
   (i) Feature
   (ii) Types of predefined feature
   (iii) Advantage of Feature
   (iv) Simple force mode Force Control
   (v) Frame mode Force Control
   (vi) Point mode Force Control
   (vii) Advantage of Pallet template
   (viii) Types of patterns for palletizing
   (ix) Approach point and Exit point in palletizing
   (x) Layers and Separator