Mechanical and Aerospace Engineering Department
University of Texas at Arlington
Introduction to Robotics ME 5337
Project 5: Experimentation with GMF S-110 Industrial Robot, understanding of the concept of the station frame and assemble a gear set
DUE: Fourth class meeting from assigned date

The main element of this project is the experimentation with an articulated robot, a GMF S-110. The main objective of this project is the understanding of the concept of the station frame as relates to robotics. Then, you will have to use the station frame notion and assemble a simple gearset. This gearset will consist of three gears that must be assembled and guaranteed that proper meshing has been achieved.

Project requirements:

- All previous safety rules and project requirements as defined in project 3 apply to this project as well.
- Understand the sensors available on the robot (end effector) and the conveyor.
- Understand the setup in the robotic cell as it relates to the table with the holes.
- Understand the process in KAREL that allows a user to define a USER frame.
- Learn how to teach and define a user frame.
- Use the taught and defined user frame to perform the assembly operation. The pick and place points will be given to you during the demonstration. You must not recompile your program once the pick and place points are given.

You will program the robot to perform a pick, place and assembly operation. The pick and place points are not always at the same locations bur rather they are known relative to a user frame (station frame). Therefore, you need to be able to define these points interactively in your program.

Your program should be flexible so that you can define any station frame using three of the four posts on the table.

You must observe robot structured programming principles. Your program should be a modular and expandable as possible. Write your program assuming that you do not have a-priori knowledge of the location of the station frame and the relative location of the pick and place points.

- You are to turn in a formal project report.
- The demonstrations are to be performed at a day to be defined later.