Robotic Helicoil Assembly
Proof-of-Concept

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Company Background

Collins Aerospace is an industry leader in advanced solutions for the global aerospace and defense industries.

Their Advanced Manufacturing Engineering & Technology lab in Rockford, Illinois houses a variety of ABB and Fanuc Industrial and Collaborative Robots for the purpose of testing and developing automation processes.

Project Background

Current Helicoil Assembly Process:
1. Operators attain handful of helicoils.
2. Single helicoil inserted into tool.
3. Helicoil inserted into 114 holes of Integrated Drive Generator (IDG) Housing Unit.
4. If needed, manual rework performed to achieve desired insert height.

Design Components:
- Part Presentation
- Sensors
- End Effector

Project Objectives

- Develop Successful Proof-of-Concept for automating the helicoil assembly process
- Improve Accuracy of Assembly Process leading to reduced rework and increased part life
- Reduce Overall Helicoil Assembly Time by 30 minutes (20%)