Robotic Bolt feeder System – Case Study

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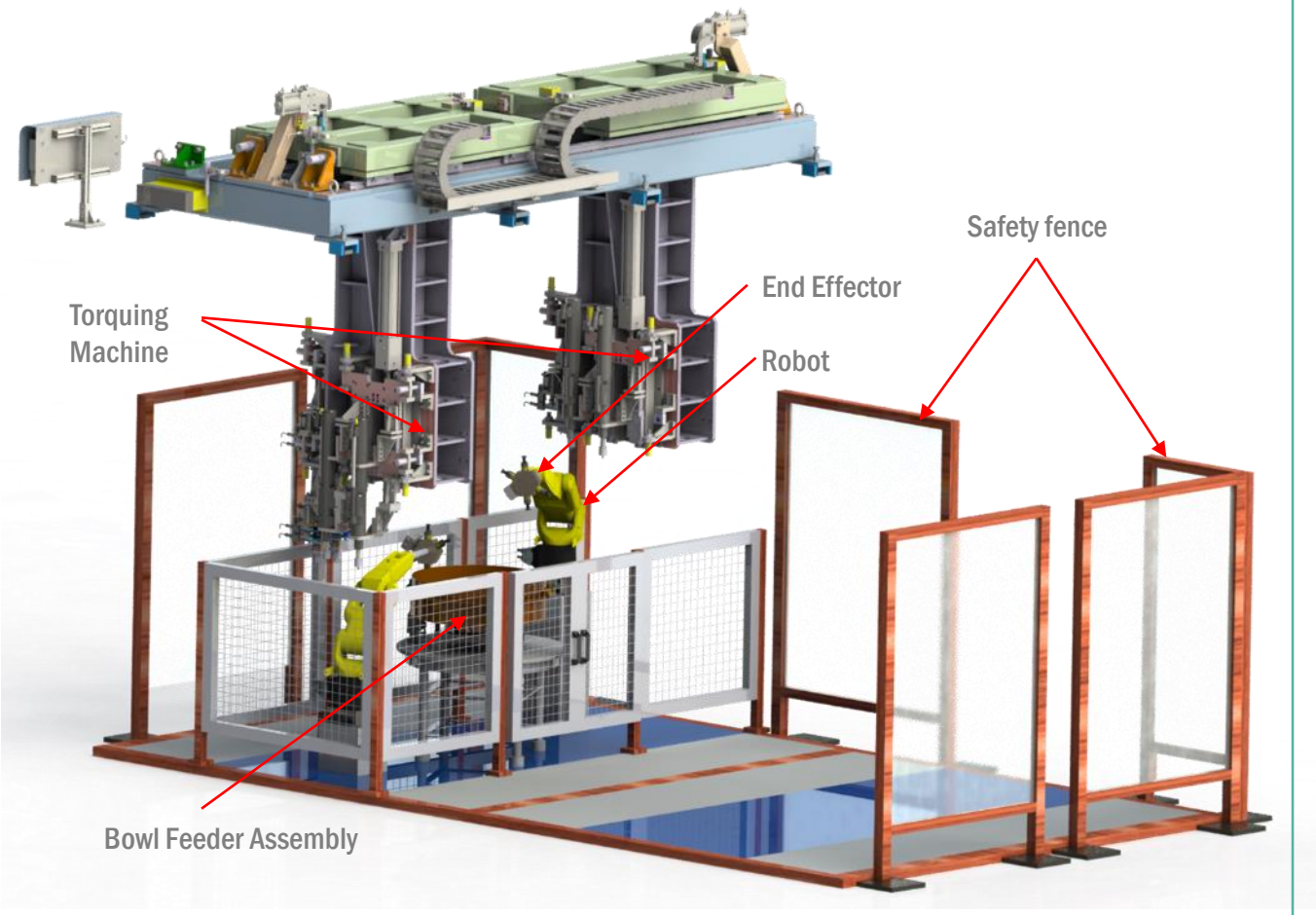
Robotic Bolt feeder System

Project Summary

- In Phase 1, AES team developed an automated system that picks bolts and places them on to the torquing machines (BL5_RPC_050_TL01 & BL5_RPC_050_TL02) in two bays individually. Total quantity of the Automation system being supplied is two for the two different bays.
- Two robots are used in one bay for automating picking and placing process of bolts into the torquing machines.
- Placement of maximum 7 bolts in the torquing machines by robot.
- AES involved in Design (Mechanical, Electrical, Controls & Pneumatics). Other activities planned are Manufacturing, Assembly Integration, Testing, Installation, Machine Manuals, Spares and Training Operators.
- In the Phase 2, AES will develop a Twin Feeder conveyor system which takes the bolts from an existing hopper to the vibratory feeder available in both the bays.
- Planned Cycle Time: 50 seconds



Isometric View
(Robots and bowl feeder shown in only one bay for clarity)

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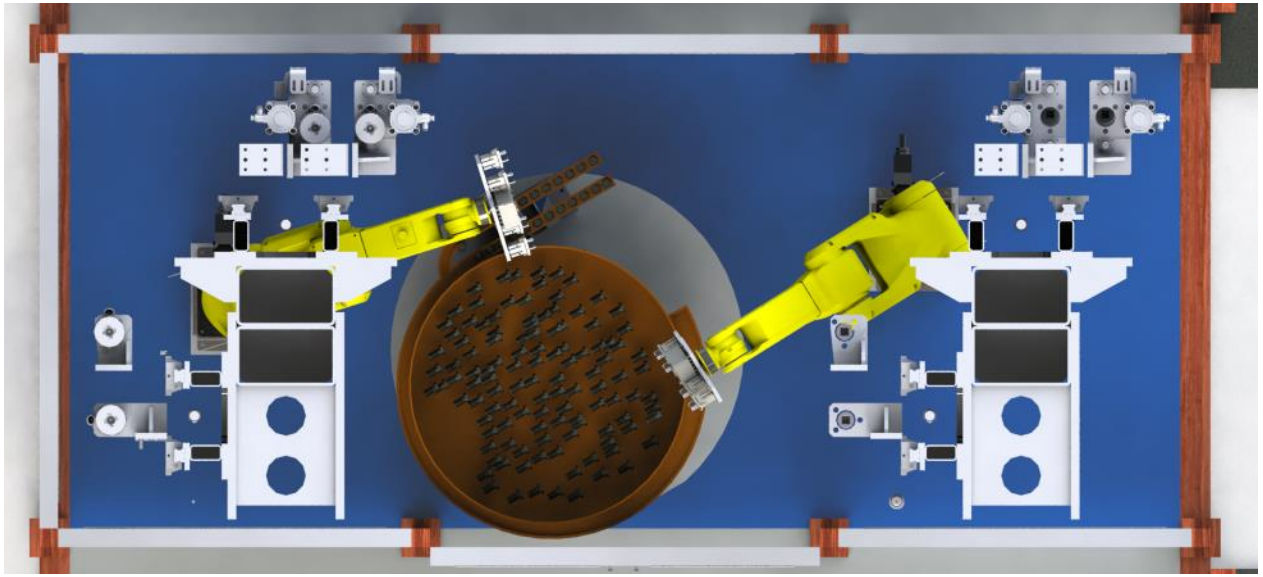
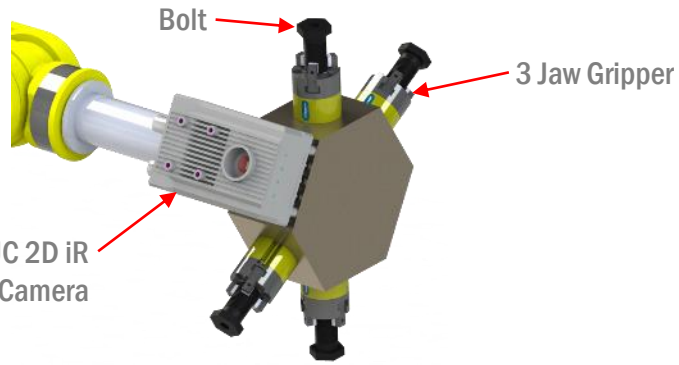
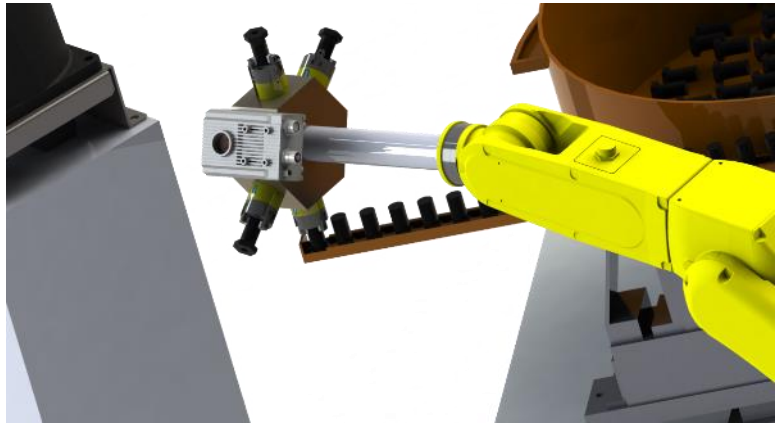


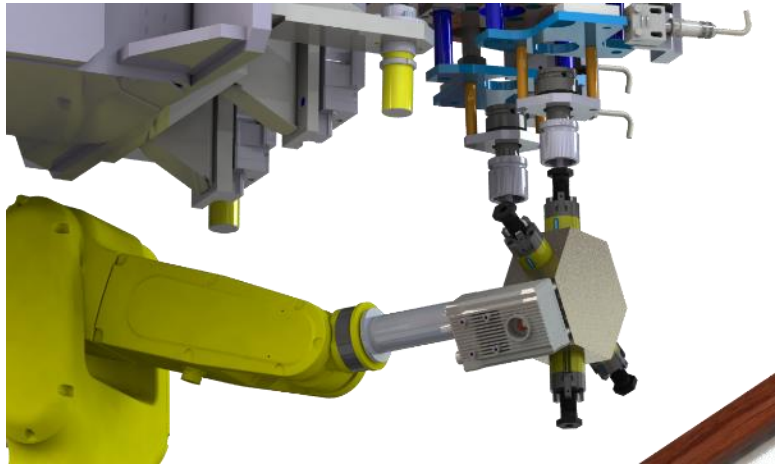
Top View



End Effector



End Effector Picking Bolt from Bowl Feeder



End Effector Placing the Bolt

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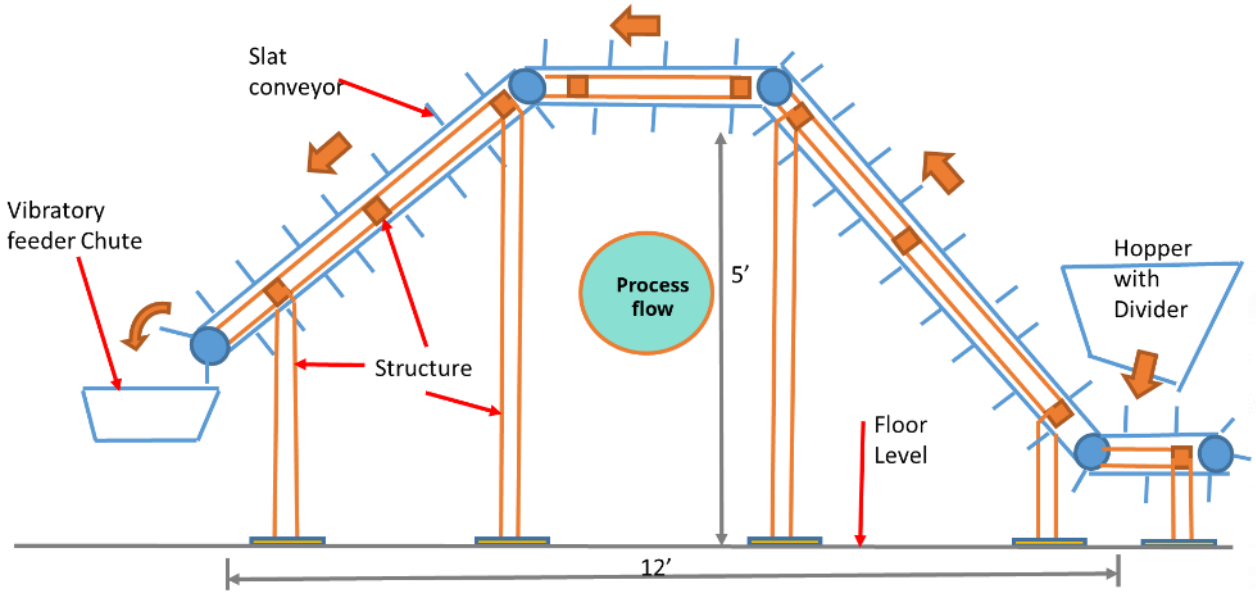
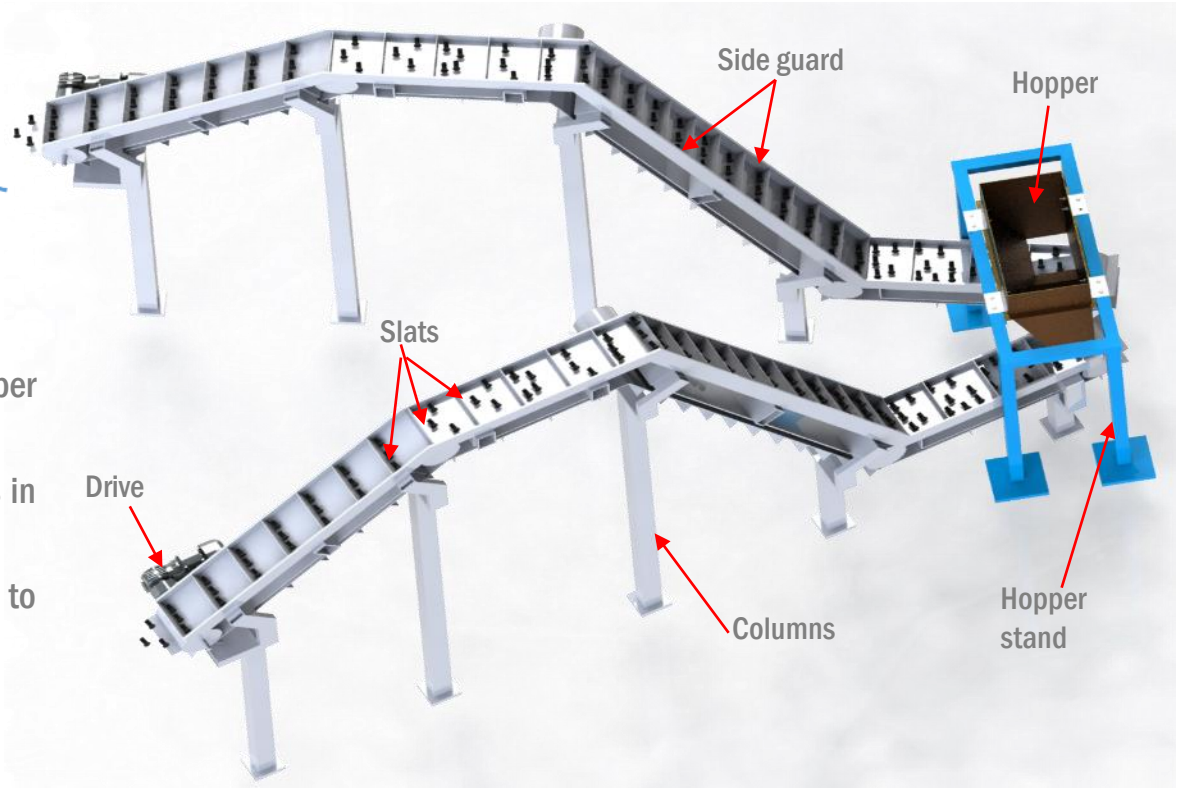
Planned Twin Feeder Conveyor System - Phase 2



- Bolts are fed into the hopper with Divider. The divider ensures that almost equal number of bolts are fed into the two slat chain conveyors.
- Two slat chain conveyors carry bolts from the hopper to the two Vibratory bolt feeders in the two bays.
- Slat chain conveyor, Hopper, drive are supported by necessary platform and columns to ensure structural rigidity.



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THANK YOU