**Project Criteria:**

1. Start and stop button to be accessed either through button on the ICT (Local control) or through the front panel (remote control).
2. Use stop and start button to control the chain conveyor (P2.0) and belt conveyor (P2.3)
3. Place the plastic and metal objects manually on the chain conveyor
4. Successfully use metal and object detector to distinguish between metal and plastic
5. The sort solenoid (P2.1) or actuator #1 to be triggered when a plastic is sensed
6. As soon as the plastic part is sorted and pushed to lane 2, the actuator should return to its home position
7. At this time Rotary solenoid (P2.2) or actuator #2 is to be triggered
8. As soon as at least one plastic is going through lane 2, then the Rotary solenoid (P2.2) or actuator #2 should return to its home position
9. Once the metal and plastic are assembled successfully, Assembly detection through three sensors at the junction on the belt conveyor to be detected as a full assembly. If it is considered as full assembly, it will pass the reject solenoid (P2.4) or actuator #3 and accumulates in Green Bin.
10. However, if the assembly is not assembled with plastic, then it means we should expect only a metal object should pass the three sensors.
11. If it is only metal object then the reject solenoid (P2.4) or actuator#3 should be on and shoot the metal to the red box and return to its home position
12. Front Panel GUI of LabVIEW is needed. The items like user control including;
13. Start system and pause system (Remotely use mouse to control the buttons (start/stop) to control the chain conveyor (P2.0) and belt conveyor (P2.3)
14. Status of all the sensors and actuators
15. The program should have two mode : auto mode and manual mode. In manual mode, step by step operation is manual controlled from the front panel.
16. During the auto mode was running, a sudden power outage cause the failure operation of the ICT. After the power recovered, the ICT should resume to continue only when a start button is pressed ( either from the green color physical button on the ICT or from the ‘start’ button on the front panel)

**Bonus:**

1. **System Performance**: If your system has a counter to count the number of completed and rejected items. Provide the success ratio.
2. **File I/O: Labview program generates an automated report on production. The report can be** text file /excel file /CSV file, and should be formatted with  including the following info:

Time stamp, sensor 1 status, sensor 2 status, …….. belt conveyor status, chain conveyor status,  Actuator 1 status ……, Number of assembled items, Number of reject items, Success ratio, cycle time