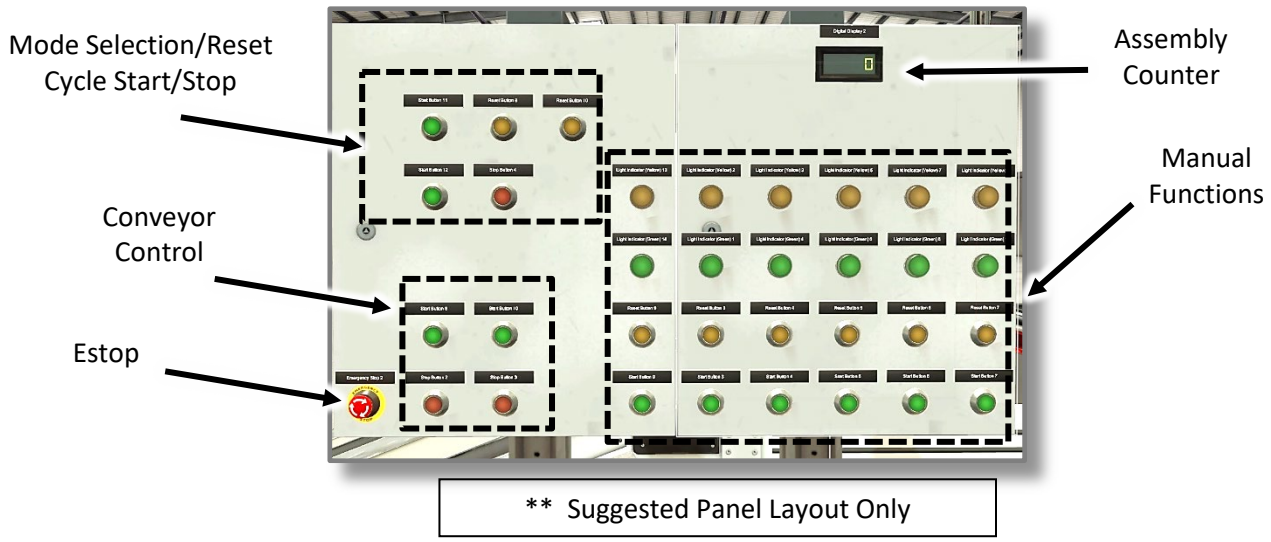
Name: _____

Date: ____ _____ _____
Year Month Day

Assembler LAB 2 – Purposes: The student will learn to:

1. Edit an existing Scene in Factoryio to create a unique layout with a new Pushbutton panel as shown below.
2. Become familiar with the concepts of Manual and Automatic Operation.
3. Connect the Simulation to a Rockwell PLC.
4. Edit the PLC program from Lab 1 to create the addition functions outlined in the Specifications (this will include expanding the Input and Outputs).
5. Design while keeping in mind that there will be more future additions to equipment and functionality for Lab 3.



** Suggested Panel Layout Only

Required:

Deliverables:

- Sketch of your design and create any notes required to implement these changes.
- Successful demonstration of Automatic Operation (can be the same code as used in Lab 1).
- Successful demonstration of the basic **Manual** Operation
- Successful demonstration of End of Cycle Stop (successful restart is not required).
- Copy of PLC Code AND Factoryio Scene Uploaded to Blackboard

Other Specifications:

- Watch video if needed
- Load Scene from Lab 1 and then save as Lab 2
- Create Manual Function and Position Indication for each available motion.
- Manual Function must take into account the potential of damaging a real machine (for instance, you should not be able to move the Gantry horizontally while in the Lowered Position).
- Add sensors as needed to detect positions on start-up (as a minimum, detect: X-Axis Returned, Z-Axis Raised, Clamp Opened and Positioner Lowered).
- Fully document your code.
- Manual and Auto Mode Buttons must be Lighted Pushbuttons
- Light and Buttons for Manual Operation Must be Separate even though the buttons have the ability to be backlit (suggest changing tag names in the Scene for un-used I/O to "-").
- Conveyor Motor Controls must be Lighted Pushbuttons

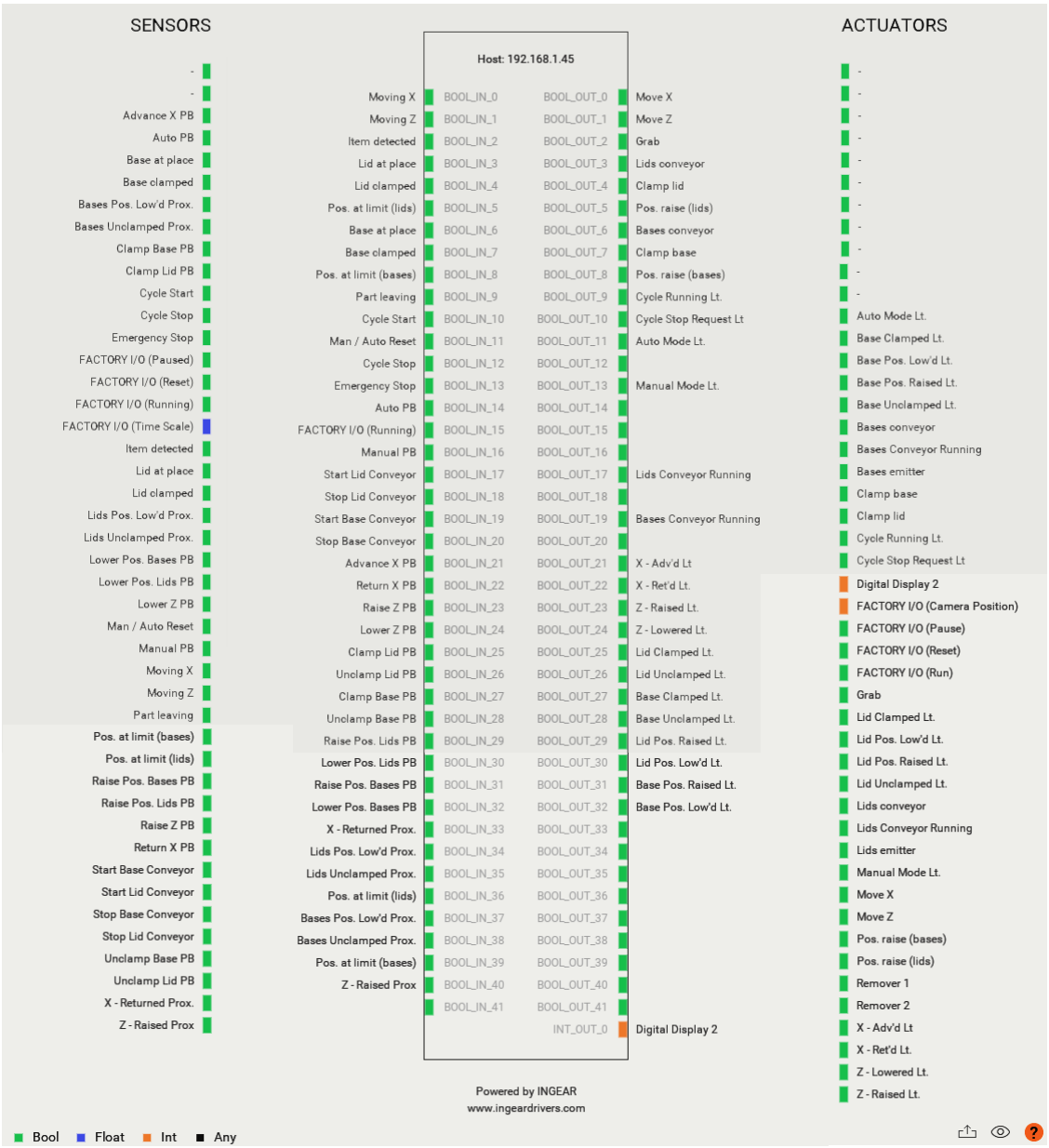
Notes:

- You may remove the guarding to make it easy to work with the simulation.
- The sample pushbutton panel replaces the exiting panel
- ** The example panel shown here may not have the correct number of Pushbuttons and Lights … is it **AN EXAMPLE ONLY**

Future Considerations:

- This will be followed up in subsequent labs so you should keep in mind what it will take to add Cameras for Part Detection and Interlocking to Transfer parts from one Simulation to Another via a PLC to PLC Network Connection.
- Adding Detection to only Assemble Matched Pairs

Assembler Lab 2 - Suggested IO Configuration



Report is Due _____