Cognex Designer– Section 9
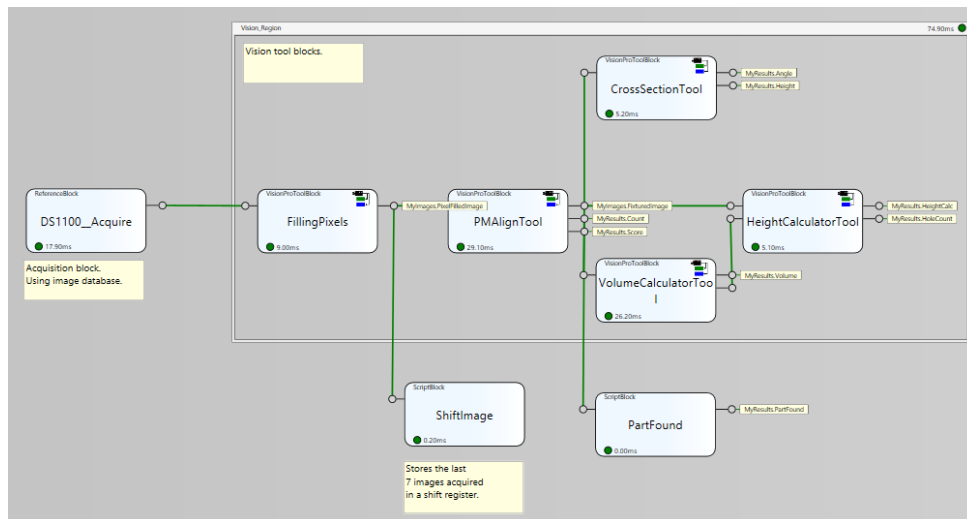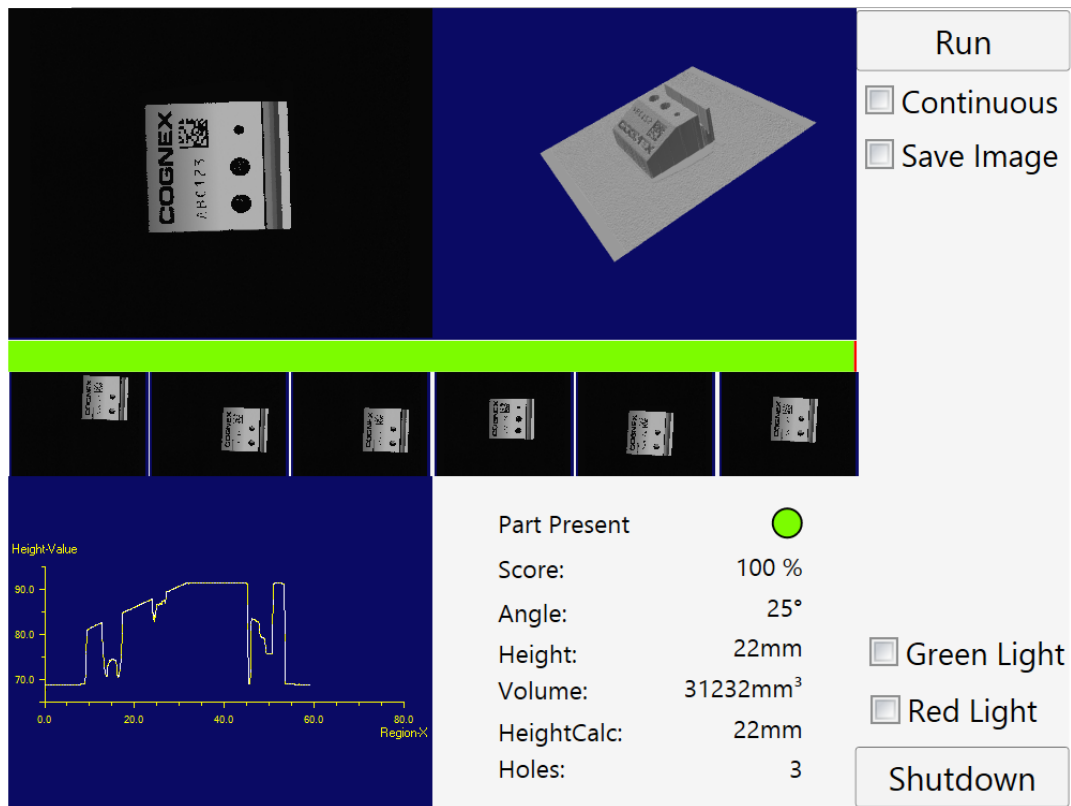# Communication Lab
Approximate Duration: 15-30 minutes

EXPECTED OUTCOMES:

- Control LEDs lights through HMI and Button
- Control LED lights through application

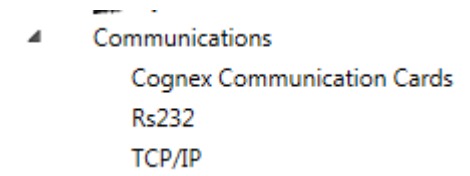## EXPECTED VISUAL RESULT:

OUTLINE OF LAB:
1. **Control LED lights through HMI**
   a. **Add a IO device**
   b. **Add WriteDiscrete object to Sequence**
2. **Control LED Lights through Button**
   a. **Add ReadIO to see the button**
3. **Control LED lights through application**
   a. **Switch LED to be output of Application**

Steps for the Lab:
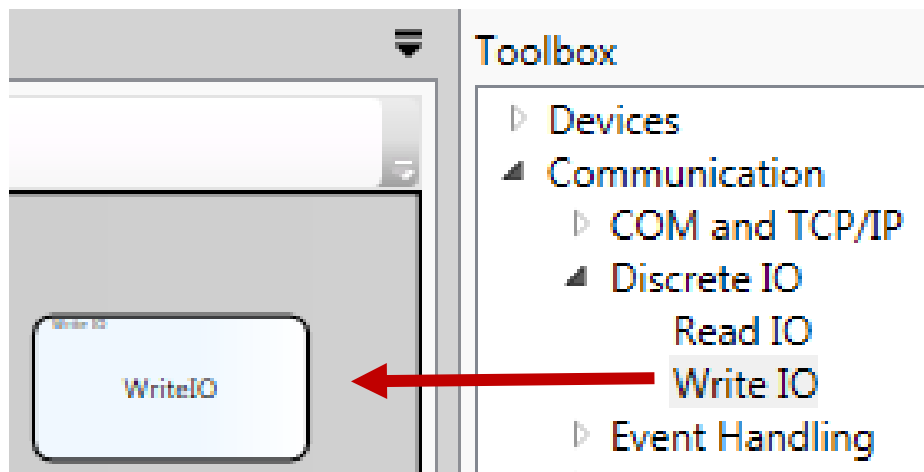
1. **Control LED lights through HMI**
   1. **Add a IO device**
      i. Look to see what is available for IO devices for you PC. If using the VC5 or IP card, the IO card will be available.

   ◢   Communications
            Cognex Communication Cards
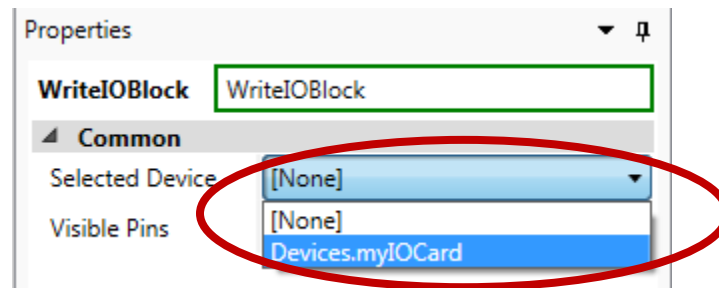   Rs232
            TCP/IP

      ii. Connect to the IO card by right clicking on the card and selecting "Connect".
      iii. Name it "myIOCard", leave the Factory Floor Protocol set to none and the index set to 0.
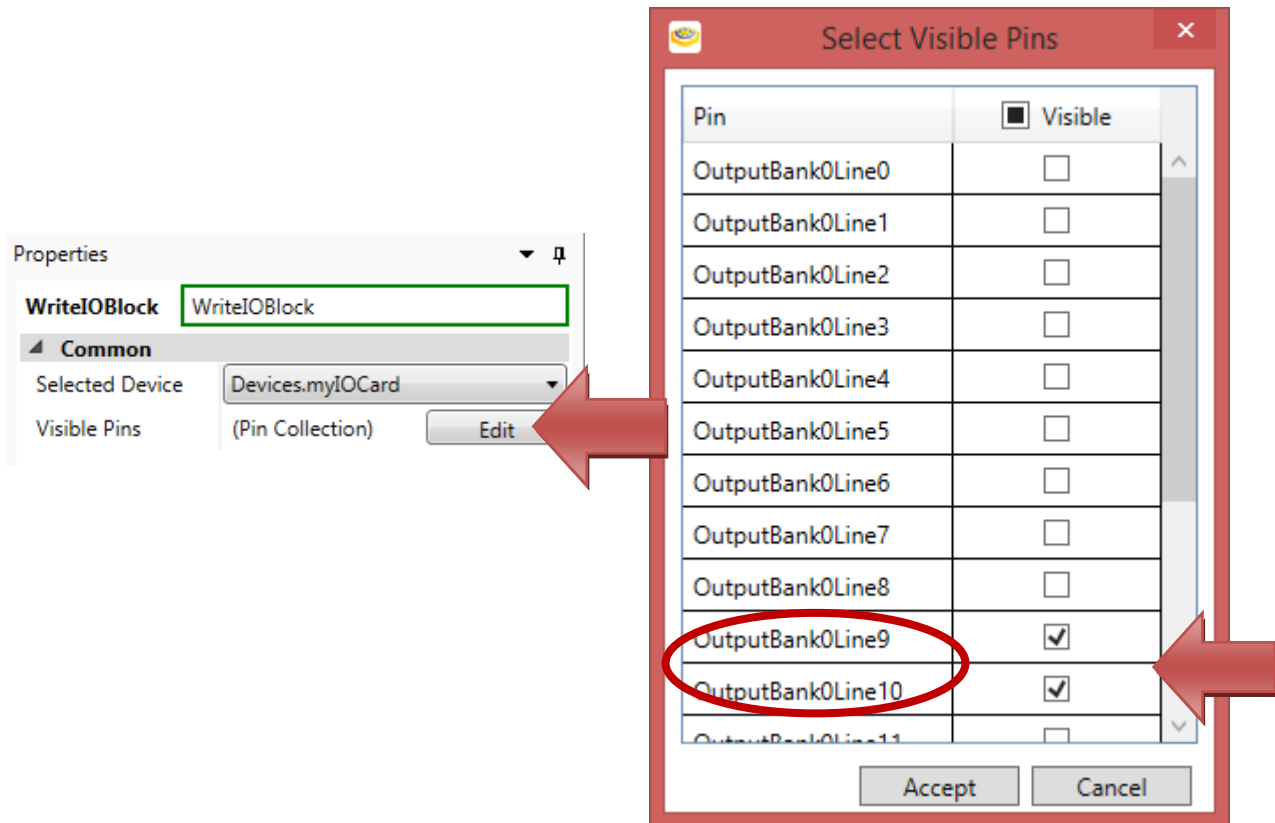
   2. **Add WriteIO object to Sequence**
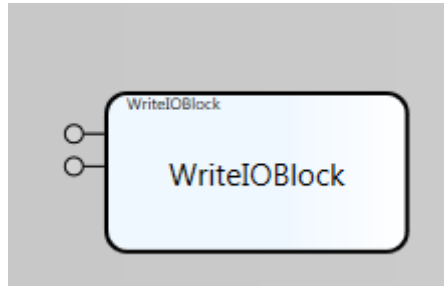   i. Drag the WriteIO object on to the Sequence.

ii. Note on the IO board which lines are used for the light. For our class, we may be using line 9 for the Green LED and Line 10 for the Red LED.

iii. Go to the Properties tab while choosing the WriteIOBlock and have it attach to the Comm Card.

iv. Configure the WriteIO object to only show lines 9 and 10 by not enabling all the lines and just choosing 9 and 10.This is done by right-clicking on the WriteIOBlock and selecting "Configure I/O".
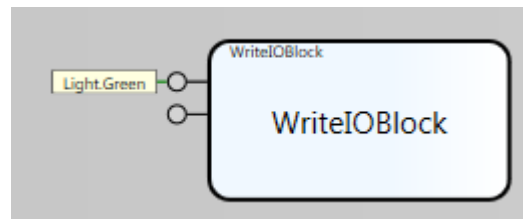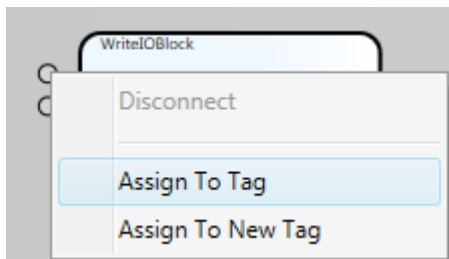
> **v.** Create two new tags in the Tag Manager called "MyLights.Green" and "MyLights.Red"

| MyLights.Green | | Boolean |
| MyLights.Red | | Boolean |

> **vi.** On the Sequence, attached line 9 of the WriteIOBlock to the tag "Light.Green"

> **vii.** Attach Line 10 to the tag "Light.Red"

> **viii.** Go to the HMI page and add two checkboxes, one name "Green Light" and one named "Red Light"

Part Present	🟢	
Score:	100 %	
Angle:	25°	
Height:	22mm	☐ Green Light
Volume:	31232mm³	☐ Red Light
HeightCalc:	22mm	
Holes:	3	Shutdown

ix. Attach the State of the "Green Light" checkbox to the tag "Light.Green"

◢ **Common**

State   ● ☐

◢ **Default**

Tag Selector

Filter

Address	Value	Type	R/O	Comment
▷ Components				
▷ Devices				
▷ MyChecks				
▷ MyConstants				
◢ MyLights				
Green	False	Boolean	False	
Red	False	Boolean	False	
▷ MyRecipes				
▷ MyResults				
▷ MySettings				
▷ Pages				
▷ System				
▷ Tasks				

x. Do the same for the Red Light checkbox with the tag "MyLights.Red".

xi. Go into Test Mode and check the checkboxes – Does anything happen? Make sure you Run Once so that the WriteIO object writes the tag out.

Part Present	🟢
Score:	100 %
Angle:	25°
Height:	22mm
Volume:	31232mm³
HeightCalc:	22mm
Holes:	3

☑ Green Light

☑ Red Light

Shutdown

3. **Save your application**

Extra Credit: Control the green and red lights based on overall pass or fail status of your project.