

What is PLC

- Programmable Logic Controller
- Specialised for industrial used
- Sensors/Input → Process data → Trigger Output
(based on pre-programmed parameters)
- Monitor and record run-time data

What is ADC

- Automatic Data Capture
- Automatically
 - Identify objects
 - Collecting data
 - Record/register in computer system
- Typically used: RFID, biometric, barcode, smart cards
- Less error-prone compared to human

Factory I/O Simulation - Colour Sorter

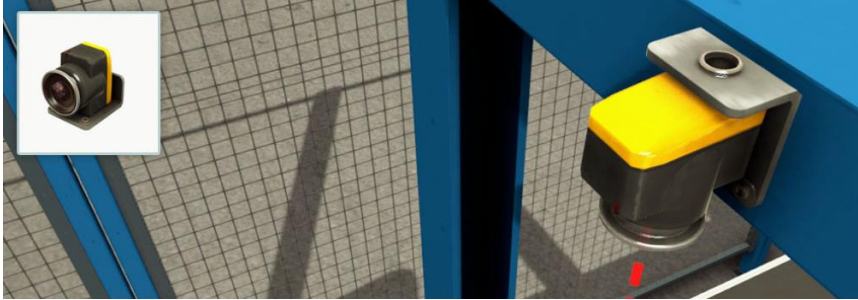
Main Function

- Separate into 3 categories
 - Green material
 - Blue material
 - Grey material
- Utilize *Vision Sensor* to identify the colour

PLC Simulator

- WinSPS-S7 from MHJ Software
- A simulation tools for Siemens S7-300-PLC
- Lightweight
- Programmable with ladder diagram

Vision Sensor Config



Blue/Green/Metal Raw ▾

Tag	Controller I/O	Type	Description
Vision Sensor #	Input	Bool	Detecting.

Configure to detect *Blue*

- If *Blue* detected, sensor output as *True*
- If *Blue* not detected, sensor output as *False*

Configure to detect *Green*

- If *Green* detected, sensor output as *True*
- If *Green* not detected, sensor output as *False*

Pusher Config



Used to push the material into designated areas

Monostable

Tag	Controller I/O	Type	Description
Pusher #	Output	Bool	Move forward.
Pusher # (Front Limit)	Input	Bool	At front limit.
Pusher # (Back Limit)	Input	Bool	At back limit.

PLC I/O

Inputs

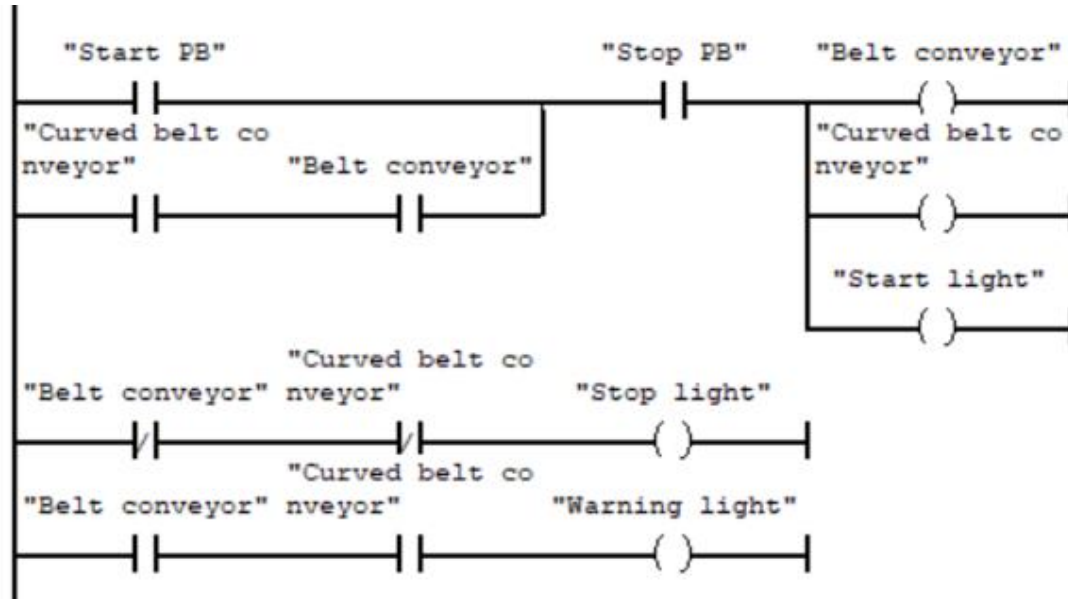
Vision Sensor 1	I0.0
Vision Sensor 2	I0.1
Pusher 1 (Front Limit)	I0.2
Pusher 2 (Front Limit)	I0.3
Start Button 1	I0.4
Stop Button 1	I0.5
	I0.6
	I0.7
	I1.0
	I1.1

Outputs

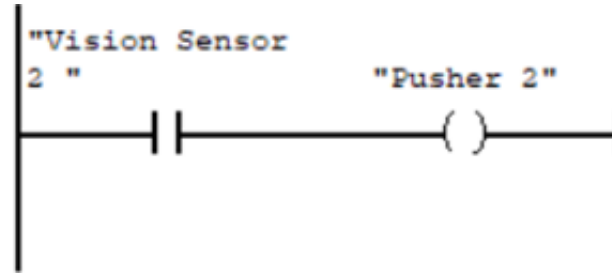
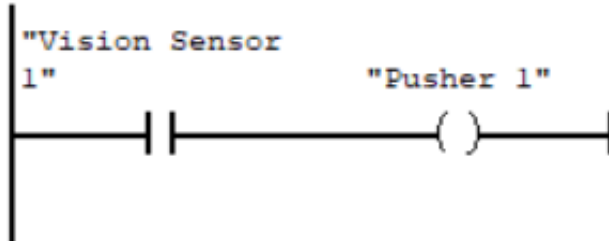
Q0.0	Belt Conveyor (6m) 1
Q0.1	Curved Belt Conveyor 1 CW
Q0.2	Pusher 1
Q0.3	Pusher 2
Q0.4	Start Button 1 (Light)
Q0.5	Stop Button 1 (Light)
Q0.6	Warning Light 1
Q0.7	
Q1.0	
Q1.1	

Ladder Diagram

Push Button Controlled Conveyor



Vision Sensor Controlled Pusher



Simulation Video

