Cell_1_ZZ

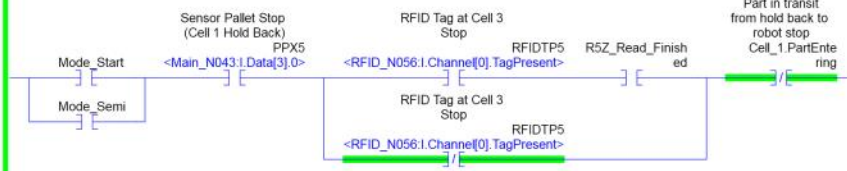
Sunday, April 09, 2017
5:50 PM

Cell_1_ZZ - Ladder Diagram **Page 1**
AdvManLab:MainTask:MainProgram 4/9/2017 5:56:24 PM
Total number of rungs in routine: 15 C:\Users\VRMILLING\Documents\control_team_manuals\Logic W2017\AdvManLabCurrent.ACD

Logix Designer

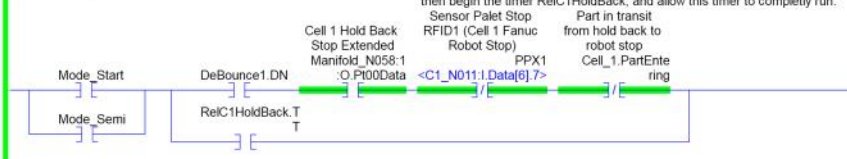
If there is a part at Cell 1 Hold Back Stop (which is sensed by the proximity sensor), and their is not a part in transit to enter cell 1 (which is determined by Cell_1.PartEntering boolean, which is set to true when the pallet leaves the hold back, and set to false when it is sensed by the proximity sensor in Cell 1), then begin the Debounce1 timer. The timer ensures that noice at PPX5 won't affect the program.

3



When Mode_Auto and Dry_Cycle are activated, and the DeBounce1 timer is done, and the Cell 1 Hold Back Stop is extended, and there is not a pallet at the pallet stop in Cell 1, and there is not a part in transit to cell 1, then begin the timer RelC1HoldBack, and allow this timer to completly run.

4

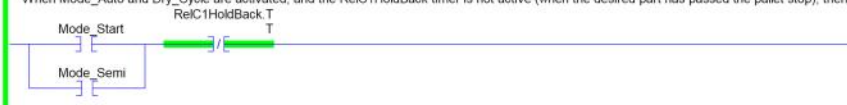


When Mode_Auto and Dry_Cycle are activated, and the RelC1HoldBack timer is in process, alllow the part to enter cell 1. To do that, unlatch the pallet stop, C1HoldBack.Ext, and latch the C1HoldBack.Ret. Then Cell_1.PartEntering is latched once to prevent new parts from coming in.

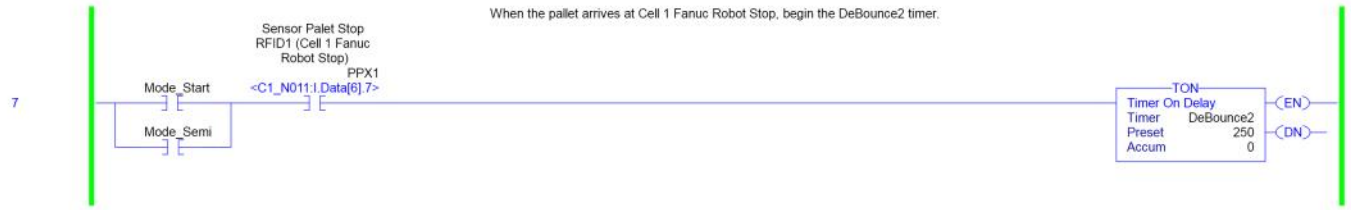
5

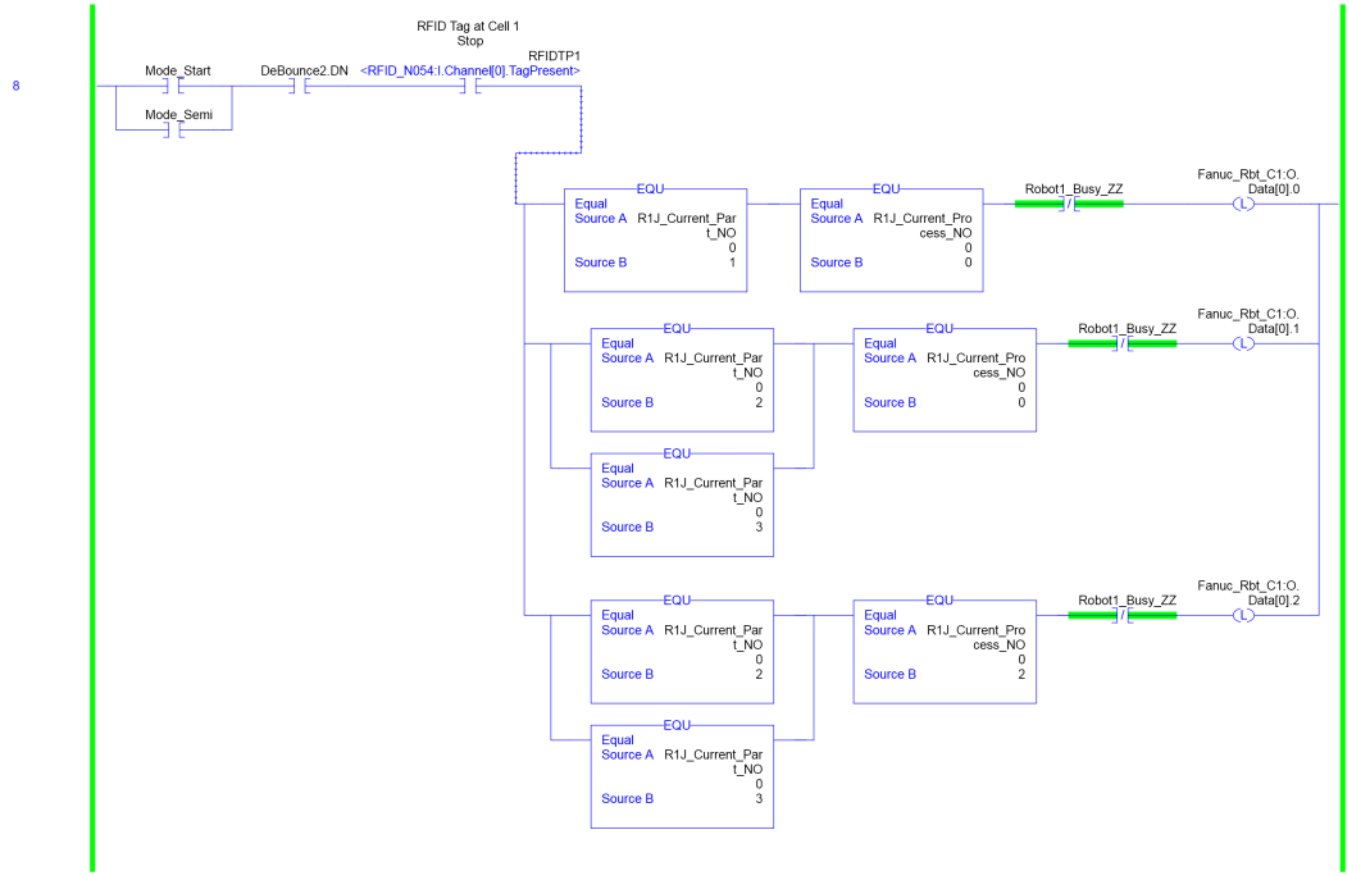
When Mode_Auto and Dry_Cycle are activated, and the RelC1HoldBack timer is not active (when the desired part has passed the pallet stop), then extended back the pallet stop. This stops the next part from passing.

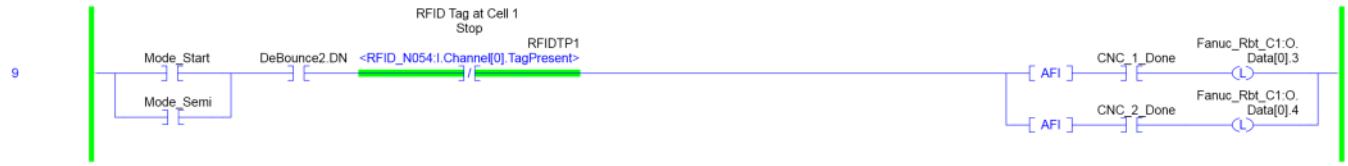
6

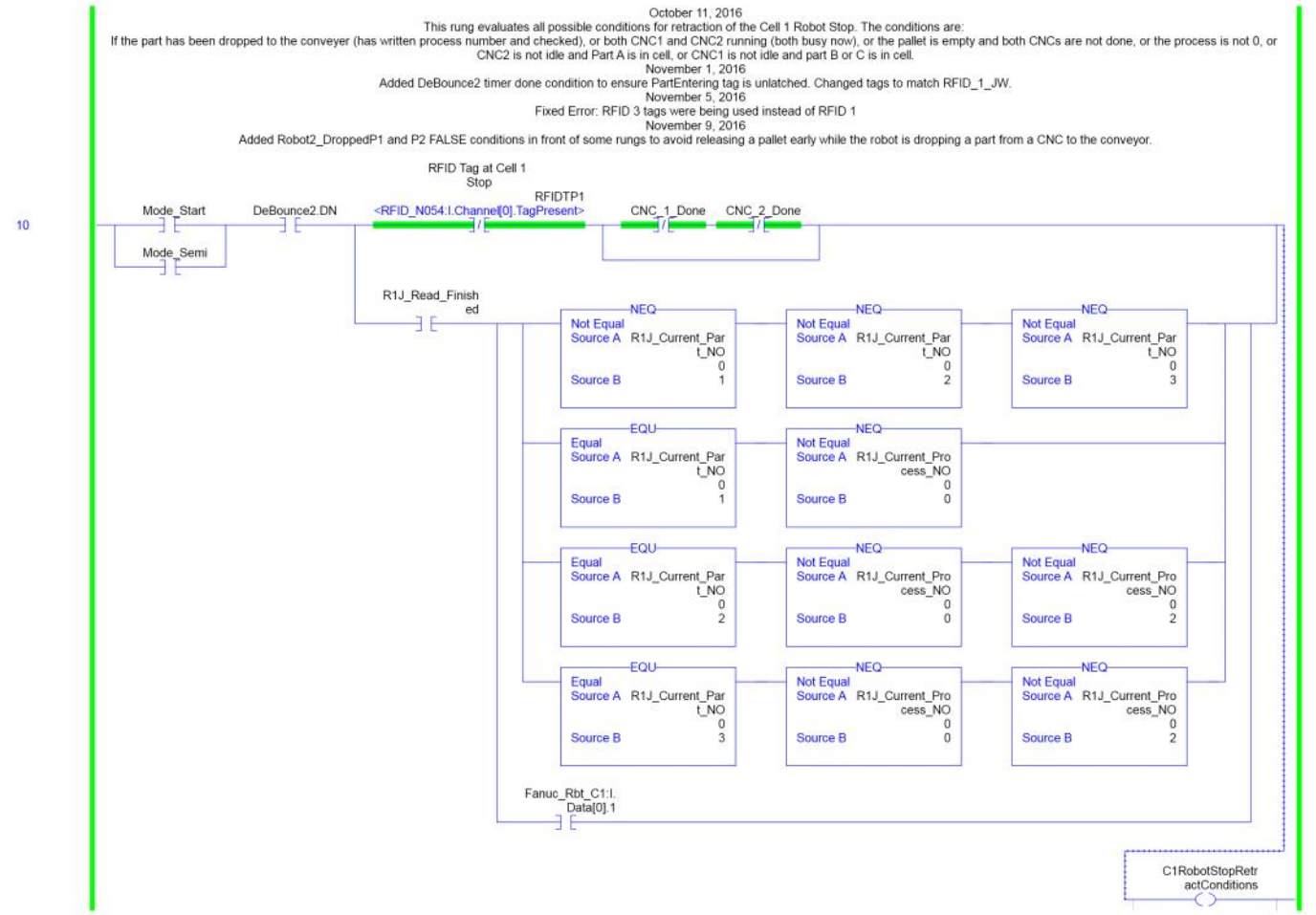


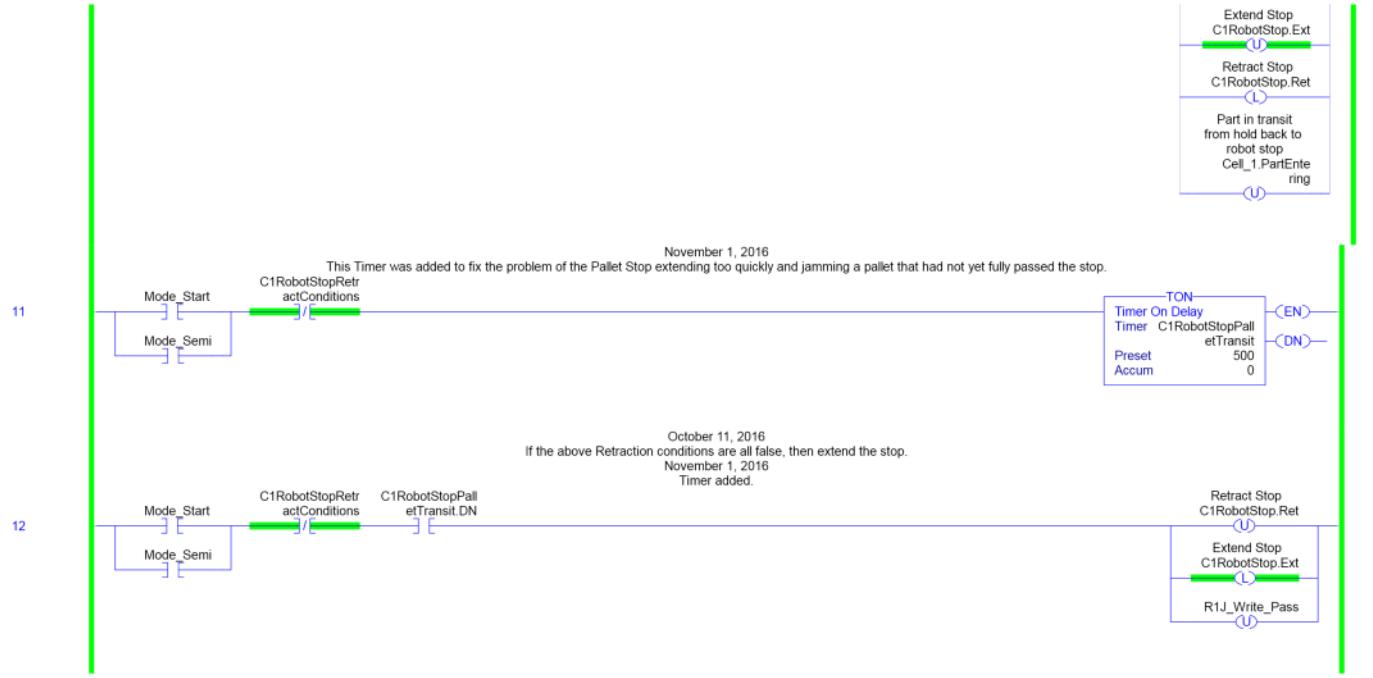
When the pallet arrives at Cell 1 Fanuc Robot Stop, begin the DeBounce2 timer.




8
Mode_Start
Mode_Semi
DeBounce2.DN
RFID Tag at Cell 1 Stop
RFIDTP1
<RFID_N054:I.Channel[0].TagPresent>
EQU
Equal
Source A R1J_Current_Part_NO 0
Source B 1
EQU
Equal
Source A R1J_Current_Process_NO 0
Source B 0
Robot1_Busy_ZZ
Fanuc_Rbt_C1:O.Data[0].0
EQU
Equal
Source A R1J_Current_Part_NO 0
Source B 2
EQU
Equal
Source A R1J_Current_Process_NO 0
Source B 0
Robot1_Busy_ZZ
Fanuc_Rbt_C1:O.Data[0].1
EQU
Equal
Source A R1J_Current_Part_NO 0
Source B 3
EQU
Equal
Source A R1J_Current_Part_NO 0
Source B 2
EQU
Equal
Source A R1J_Current_Process_NO 0
Source B 2
Robot1_Busy_ZZ
Fanuc_Rbt_C1:O.Data[0].2
EQU
Equal
Source A R1J_Current_Part_NO 0
Source B 3


9
RFID Tag at Cell 1
Stop
RFIDTP1
Mode_Start
DeBounce2.DN
<RFID_N054:I.Channel[0].TagPresent>
Mode_Semi
AFI
CNC_1_Done
Fanuc_Rbt_C1:O.
Data[0].3
AFI
CNC_2_Done
Fanuc_Rbt_C1:O.
Data[0].4


October 11, 2016
This rung evaluates all possible conditions for retraction of the Cell 1 Robot Stop. The conditions are:
If the part has been dropped to the conveyer (has written process number and checked), or both CNC1 and CNC2 running (both busy now), or the pallet is empty and both CNCs are not done, or the process is not 0, or CNC2 is not idle and Part A is in cell, or CNC1 is not idle and part B or C is in cell.
November 1, 2016
Added DeBounce2 timer done condition to ensure PartEntering tag is unlatched. Changed tags to match RFID_1_JW.
November 5, 2016
Fixed Error: RFID 3 tags were being used instead of RFID 1
November 9, 2016
Added Robot2_DroppedP1 and P2 FALSE conditions in front of some rungs to avoid releasing a pallet early while the robot is dropping a part from a CNC to the conveyor.
10
RFID Tag at Cell 1 Stop
RFIDTP1
Mode_Start
DeBounce2.DN
<RFID_N054:I.Channel[0].TagPresent>
CNC_1_Done
CNC_2_Done
Mode_Semi
R1J_Read_Finished
NEQ
Not Equal
Source A R1J_Current_Part_NO
Source B 0 1
NEQ
Not Equal
Source A R1J_Current_Part_NO
Source B 0 2
NEQ
Not Equal
Source A R1J_Current_Part_NO
Source B 0 3
EQU
Equal
Source A R1J_Current_Part_NO
Source B 0 1
NEQ
Not Equal
Source A R1J_Current_Process_NO
Source B 0 0
EQU
Equal
Source A R1J_Current_Part_NO
Source B 0 2
NEQ
Not Equal
Source A R1J_Current_Process_NO
Source B 0 0
NEQ
Not Equal
Source A R1J_Current_Process_NO
Source B 0 2
EQU
Equal
Source A R1J_Current_Part_NO
Source B 0 3
NEQ
Not Equal
Source A R1J_Current_Process_NO
Source B 0 0
NEQ
Not Equal
Source A R1J_Current_Process_NO
Source B 0 2
Fanuc_Rbt_C1:I.Data[0].1
C1RobotStopRetractConditions


Extend Stop
C1RobotStop.Ext
Retract Stop
C1RobotStop.Ret
Part in transit from hold back to robot stop
Cell_1.PartEntering
November 1, 2016
This Timer was added to fix the problem of the Pallet Stop extending too quickly and jamming a pallet that had not yet fully passed the stop.
11
Mode_Start
Mode_Semi
C1RobotStopRetractConditions
TON
Timer On Delay
Timer C1RobotStopPalletTransit
Preset 500
Accum 0
EN
DN
October 11, 2016
If the above Retraction conditions are all false, then extend the stop.
November 1, 2016
Timer added.
12
Mode_Start
Mode_Semi
C1RobotStopRetractConditions
C1RobotStopPalletTransit.DN
Retract Stop
C1RobotStop.Ret
Extend Stop
C1RobotStop.Ext
R1J_Write_Pass


If the C1RobotStop is retract and there is no RFID tags, unlatch the Robot1DroppedPart.
November 1, 2016
Removed RFID Tag not present condition (Stop was extending before part exited RFID field of view)
November 9, 2016
Changed from the retract condition to a Tag Not Present condition to ensure DroppedPart is unlatched even if the robot continues sending DO[11] after the pallet stop is extended again.
RFID Tag at Cell 1
Stop
RFIDTP1
13
Mode_Start
Mode_Semi
DeBounce2.DN
<RFID_N054:I.Channel[0].TagPresent>
Fanuc_Rbt_C1:O.
Data[0].0
Fanuc_Rbt_C1:O.
Data[0].1
Fanuc_Rbt_C1:O.
Data[0].2
Fanuc_Rbt_C1:O.
Data[0].3
Fanuc_Rbt_C1:O.
Data[0].4
14
Fanuc_Rbt_C1:I.
Data[0].0
Robot1_Busy_ZZ
(End)