WORKSHOPS SIMULATOR

PASTELERÍA DOÑA GLORIA

Worshop 1
Job sequencing

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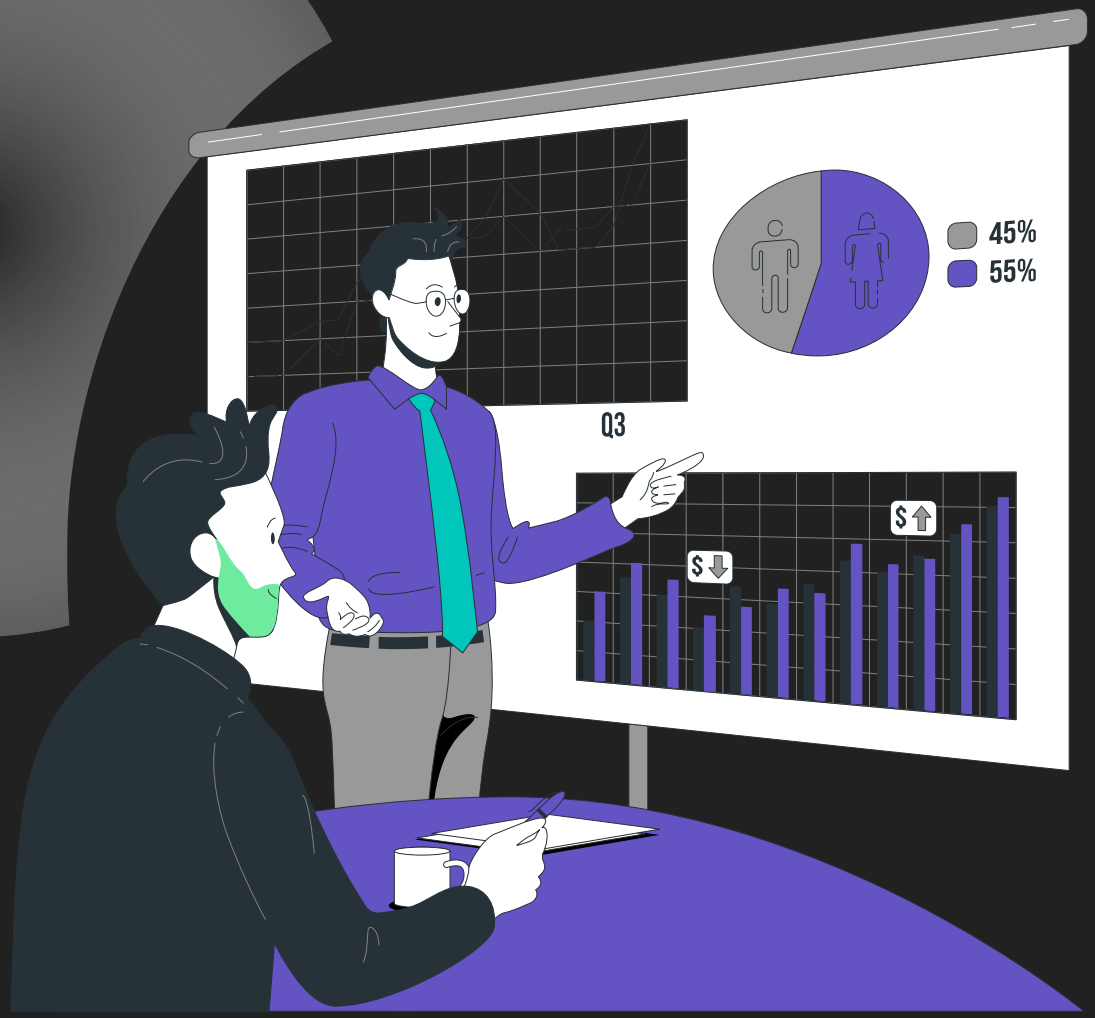


Wow!

El objetivo de nuestro producto es optimizar el la gestión de procesos de cocción de la pastelería de doña gloria para tener un mayor margen de ganancias en el mi

Historia de usuario

DHF

ELECTRONICS AND SOFTWARE

Eficiencia

El proceso de simulacion permitira demostrar la eficacia de nuestro sofware para que se apto en ambientes industriales como lo puede ser el mercado emergente de pasteleria doñ agloria

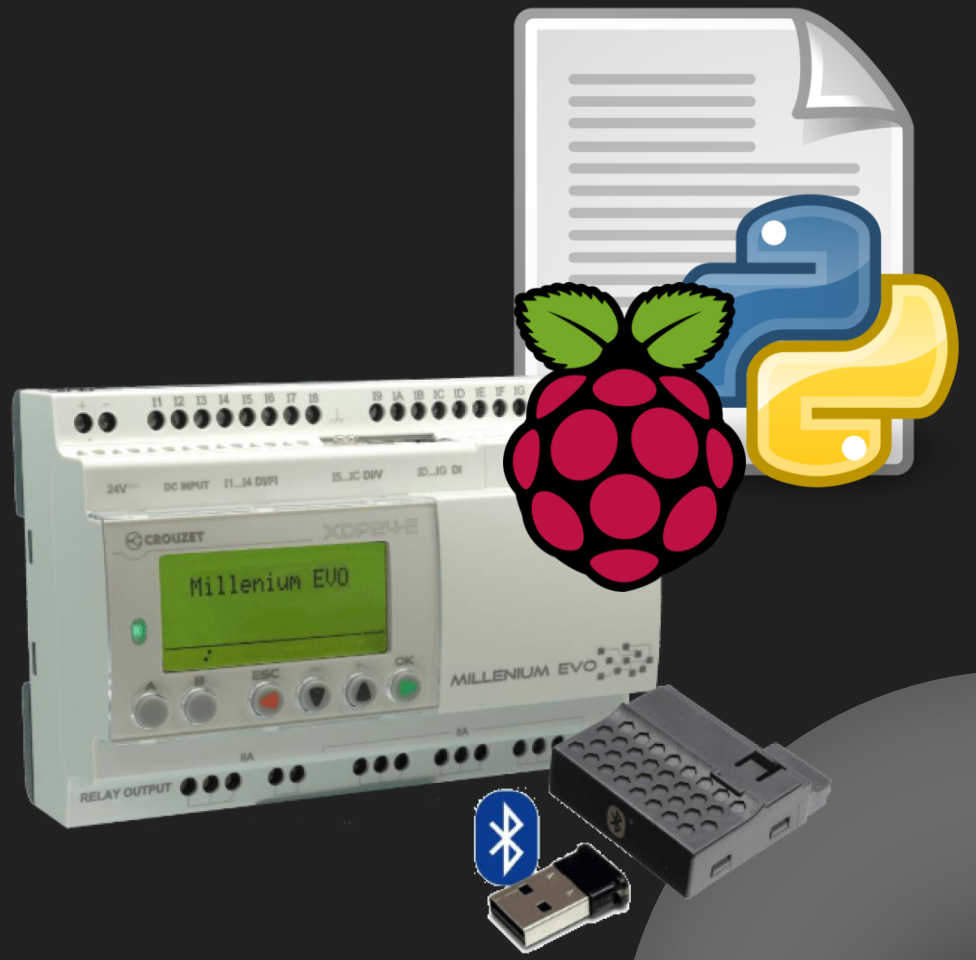
	A_1	A_2
W_1	30	50
W_2	0	40
W_3	20	70
W_4	30	0
W_5	50	20

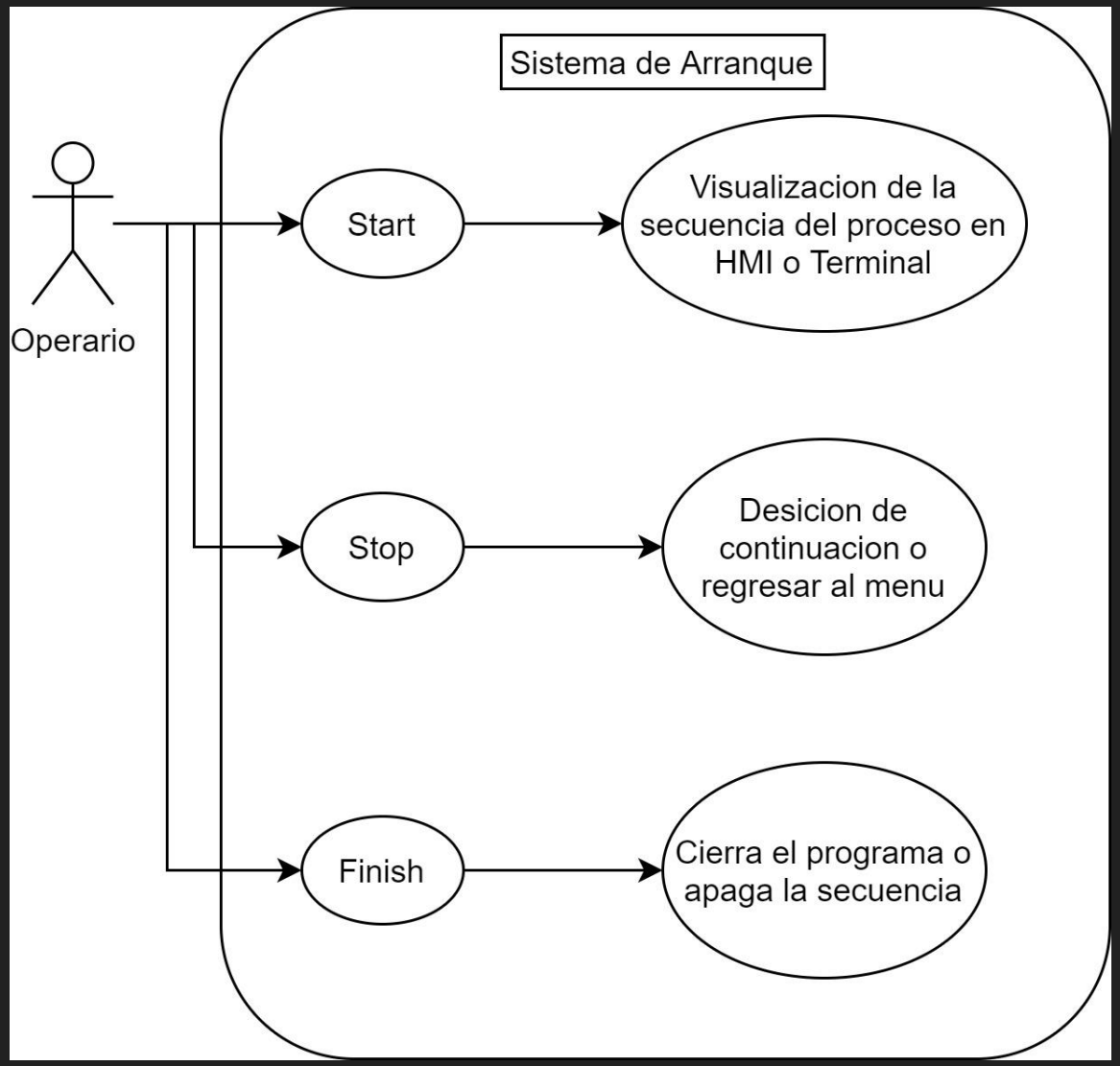
Time (minute)	Machine A1		Machine A2	
	On	Off	On	Off
0 - 10	W1		W2	
10 a 20				
20 a 30		W1		
30 a 40	W3			W2
40 a 50		W3	W1	
50 a 60	W4			
60 a 70				
70 a 80		W4		
80 a 90	W5			W1
90 a 100			W3	
100 a 110				
110 a 120				
120 a 130		W5		
130 a 140				
140 a 150				
150 a 160				W3
160 a 170			W5	
170 a 180				W5
180 a 190				

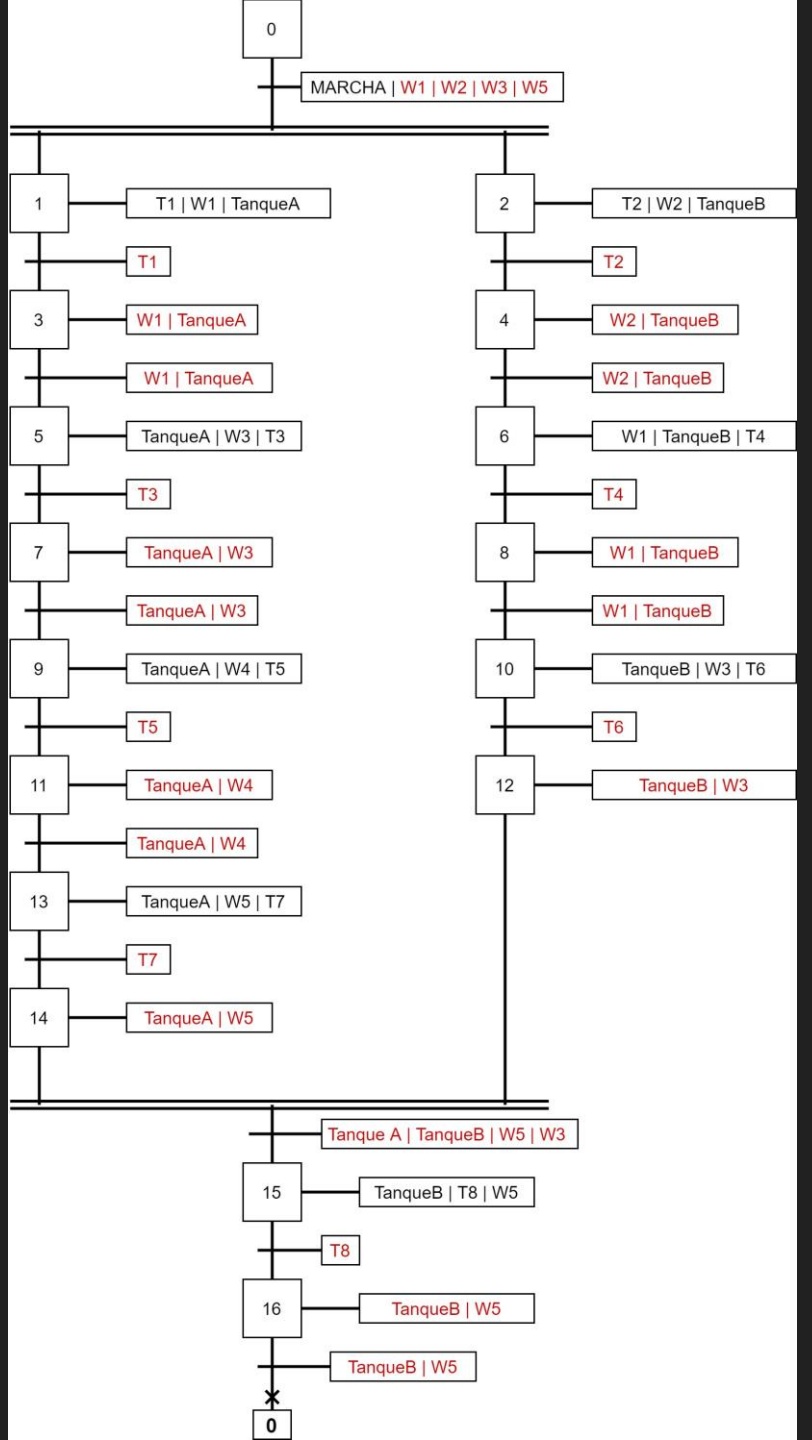
Requisitos funcionales

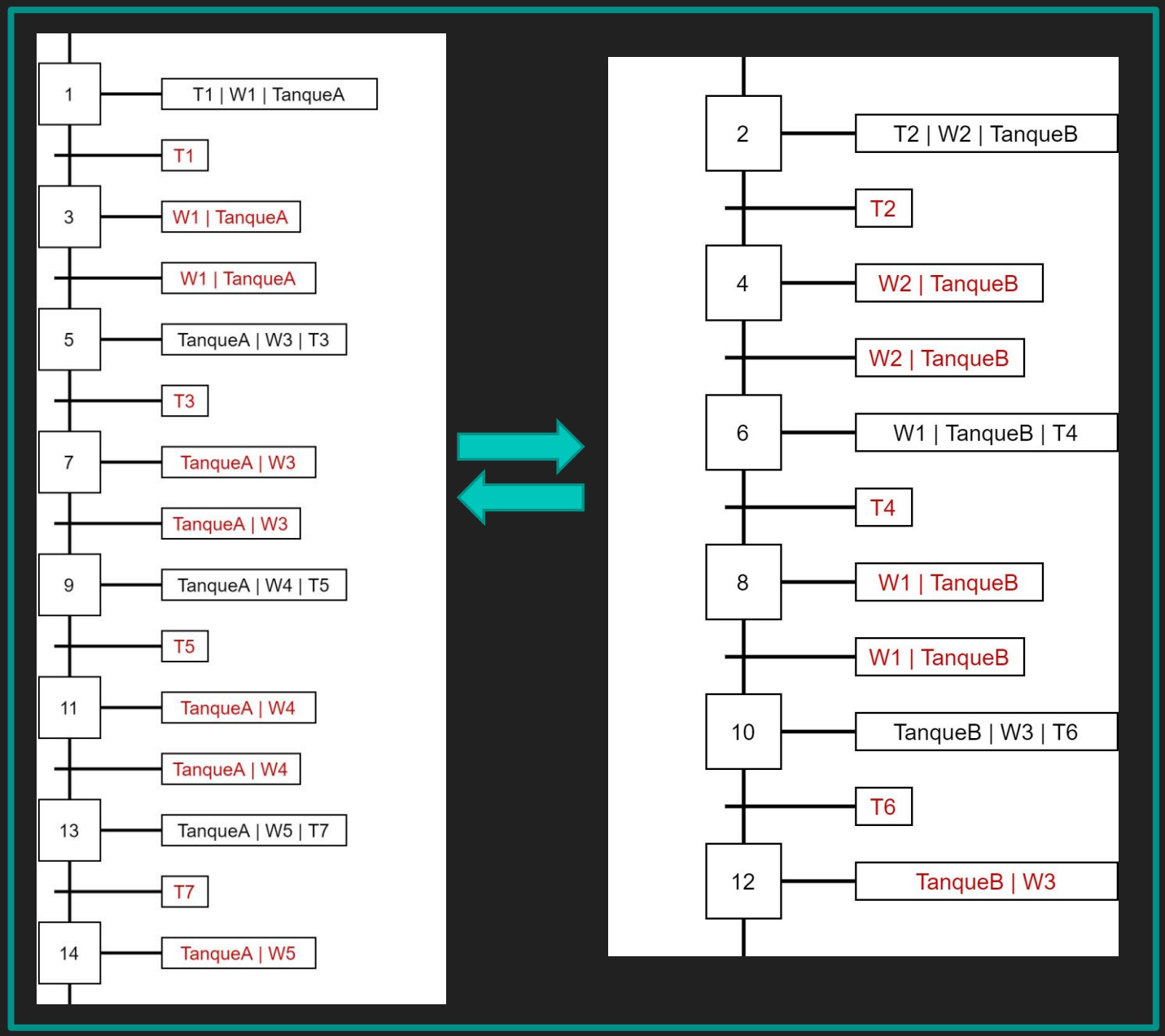
- Control del tiempo
- Etapas de coccion
- Escalabilidad

Versatibilidad

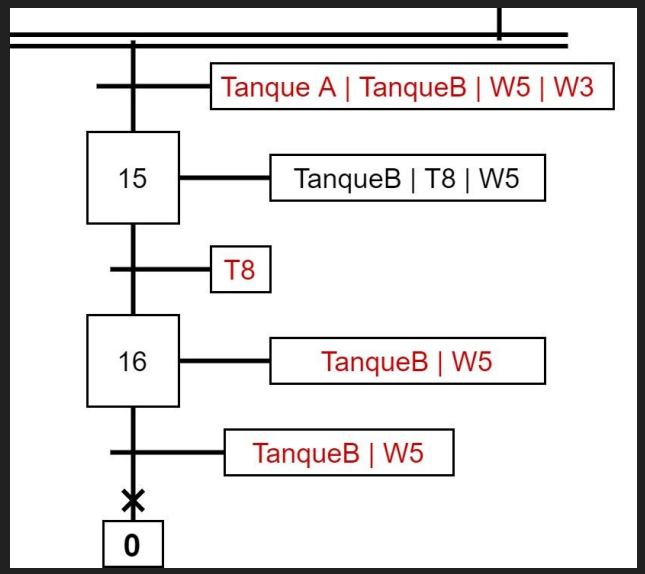



Sistema de Arranque
Operario
Start
Stop
Finish
Visualizacion de la secuencia del proceso en HMI o Terminal
Desicion de continuacion o regresar al menu
Cierra el programa o apaga la secuencia

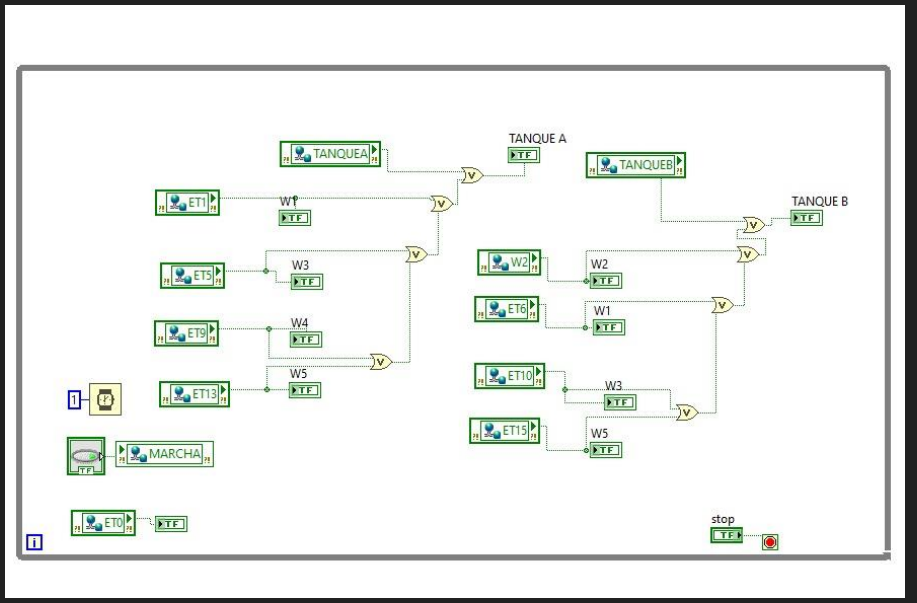

0
MARCHA | W1 | W2 | W3 | W5
1
T1 | W1 | TanqueA
T1
3
W1 | TanqueA
W1 | TanqueA
5
TanqueA | W3 | T3
T3
7
TanqueA | W3
TanqueA | W3
9
TanqueA | W4 | T5
T5
11
TanqueA | W4
TanqueA | W4
13
TanqueA | W5 | T7
T7
14
TanqueA | W5
2
T2 | W2 | TanqueB
T2
4
W2 | TanqueB
W2 | TanqueB
6
W1 | TanqueB | T4
T4
8
W1 | TanqueB
W1 | TanqueB
10
TanqueB | W3 | T6
T6
12
TanqueB | W3
Tanque A | TanqueB | W5 | W3
15
TanqueB | T8 | W5
T8
16
TanqueB | W5
TanqueB | W5
0


1
T1 | W1 | TanqueA
T1
3
W1 | TanqueA
W1 | TanqueA
5
TanqueA | W3 | T3
T3
7
TanqueA | W3
TanqueA | W3
9
TanqueA | W4 | T5
T5
11
TanqueA | W4
TanqueA | W4
13
TanqueA | W5 | T7
T7
14
TanqueA | W5
2
T2 | W2 | TanqueB
T2
4
W2 | TanqueB
W2 | TanqueB
6
W1 | TanqueB | T4
T4
8
W1 | TanqueB
W1 | TanqueB
10
TanqueB | W3 | T6
T6
12
TanqueB | W3

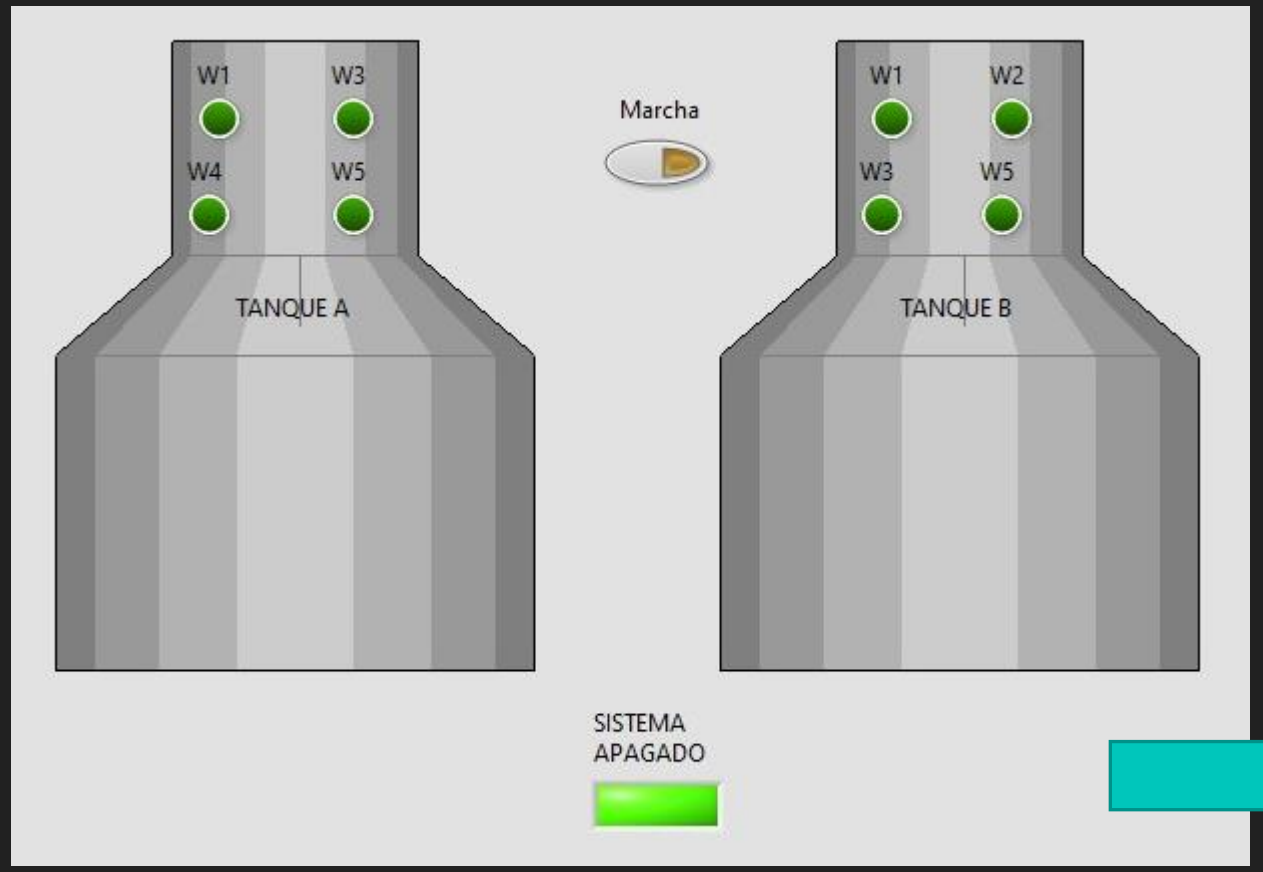
0
MARCHA | W1 | W2 | W3 | W5

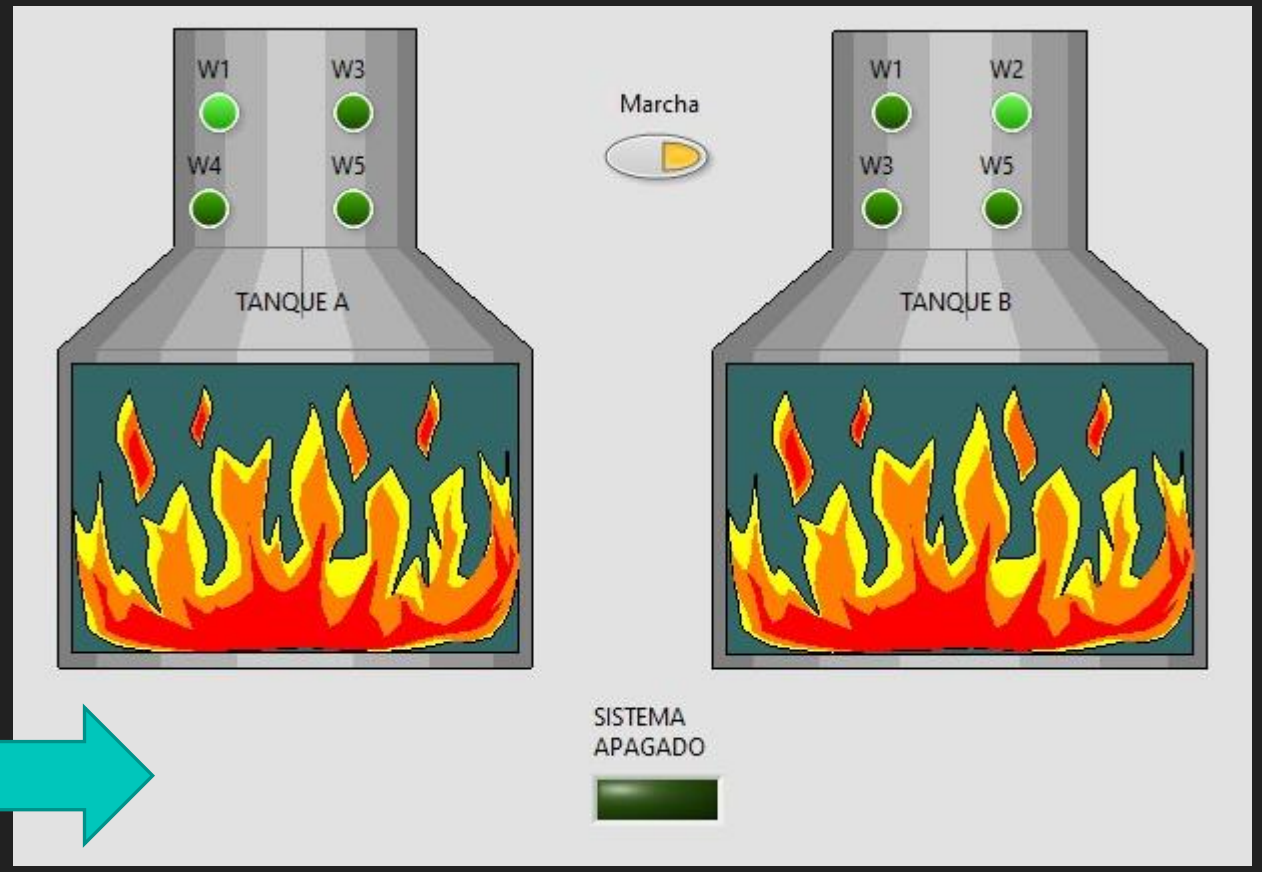

Tanque A | TanqueB | W5 | W3
15
TanqueB | T8 | W5
T8
16
TanqueB | W5
TanqueB | W5
0

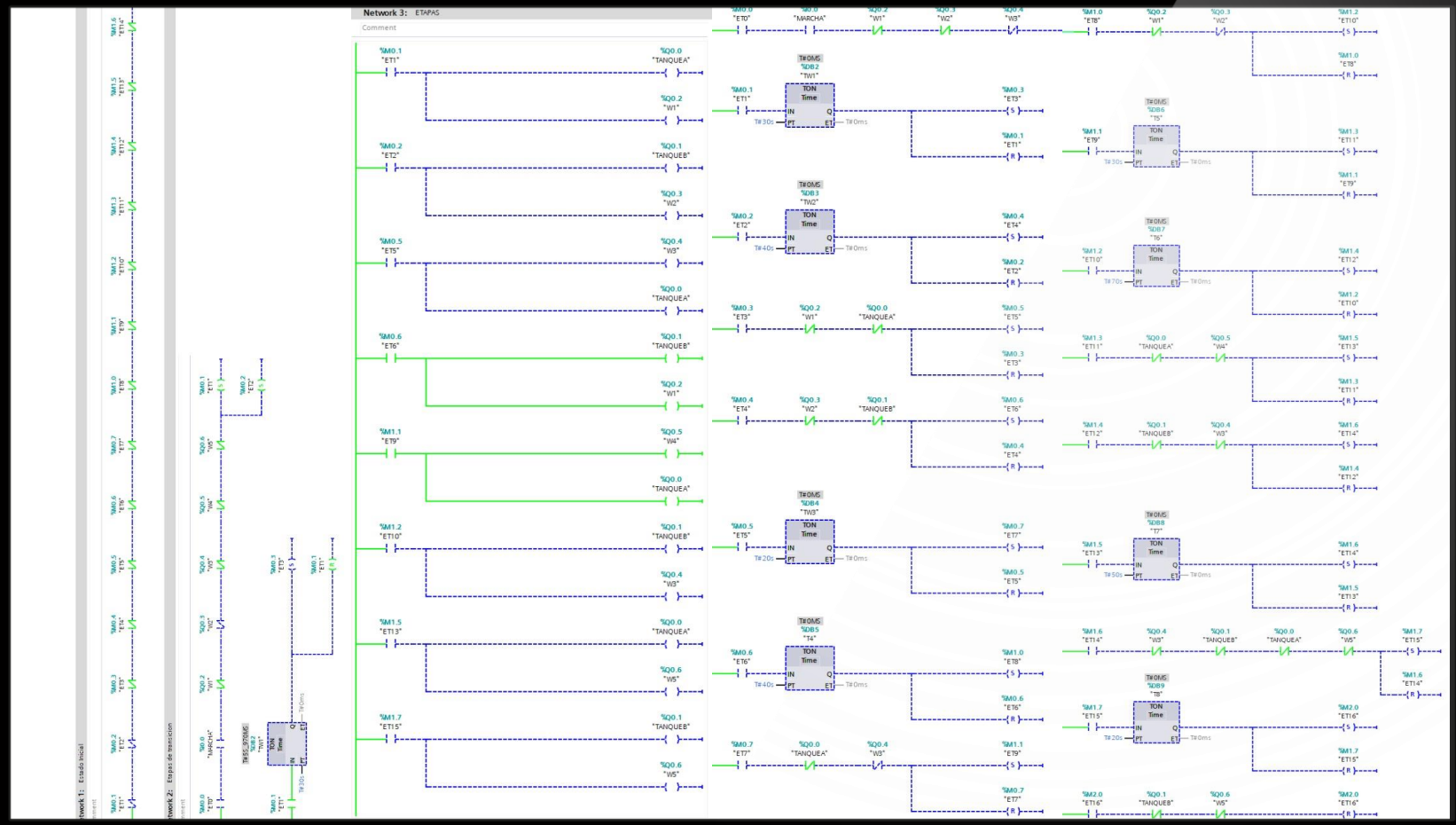
1	ET0	Default tag table	Bool	%M0.0
2	ET1	Default tag table	Bool	%M0.1
3	ET2	Default tag table	Bool	%M0.2
4	ET3	Default tag table	Bool	%M0.3
5	ET4	Default tag table	Bool	%M0.4
6	ET5	Default tag table	Bool	%M0.5
7	ET6	Default tag table	Bool	%M0.6
8	ET7	Default tag table	Bool	%M0.7
9	ET8	Default tag table	Bool	%M1.0
10	ET9	Default tag table	Bool	%M1.1
11	ET10	Default tag table	Bool	%M1.2
12	ET11	Default tag table	Bool	%M1.3
13	ET12	Default tag table	Bool	%M1.4
14	ET13	Default tag table	Bool	%M1.5
15	ET14	Default tag table	Bool	%M1.6
16	ET15	Default tag table	Bool	%M1.7
17	ET16	Default tag table	Bool	%M2.0
18	ET17	Default tag table	Bool	%M2.1
19	ET18	Default tag table	Bool	%M2.2
20	MARCHA	Default tag table	Bool	%I0.0
21	TANQUEA	Default tag table	Bool	%Q0.0
22	TANQUEB	Default tag table	Bool	%Q0.1
23	W1	Default tag table	Bool	%Q0.2
24	W2	Default tag table	Bool	%Q0.3
25	W3	Default tag table	Bool	%Q0.4
26	W4	Default tag table	Bool	%Q0.5
27	W5	Default tag table	Bool	%Q0.6
28	<Add new>			

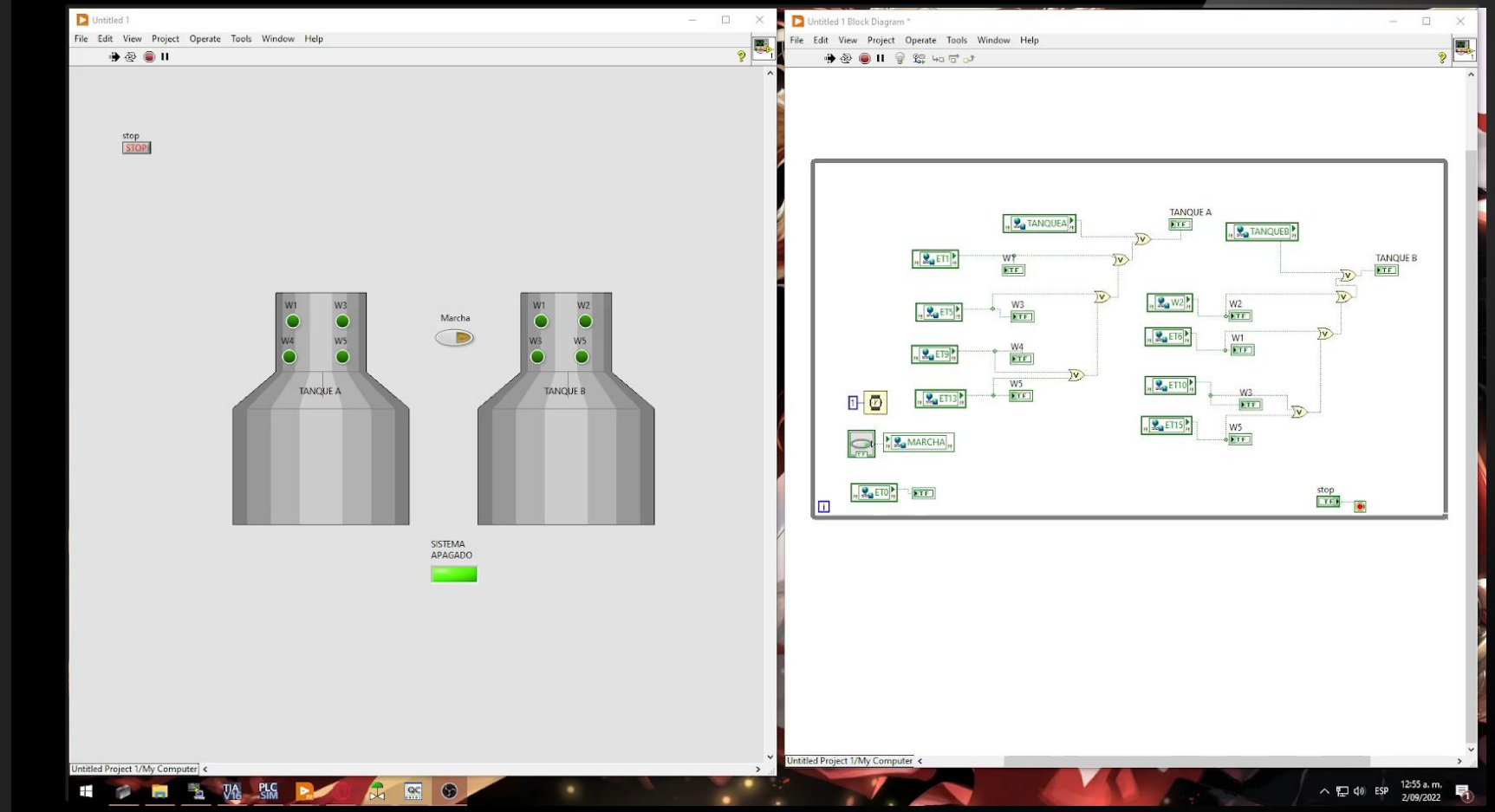


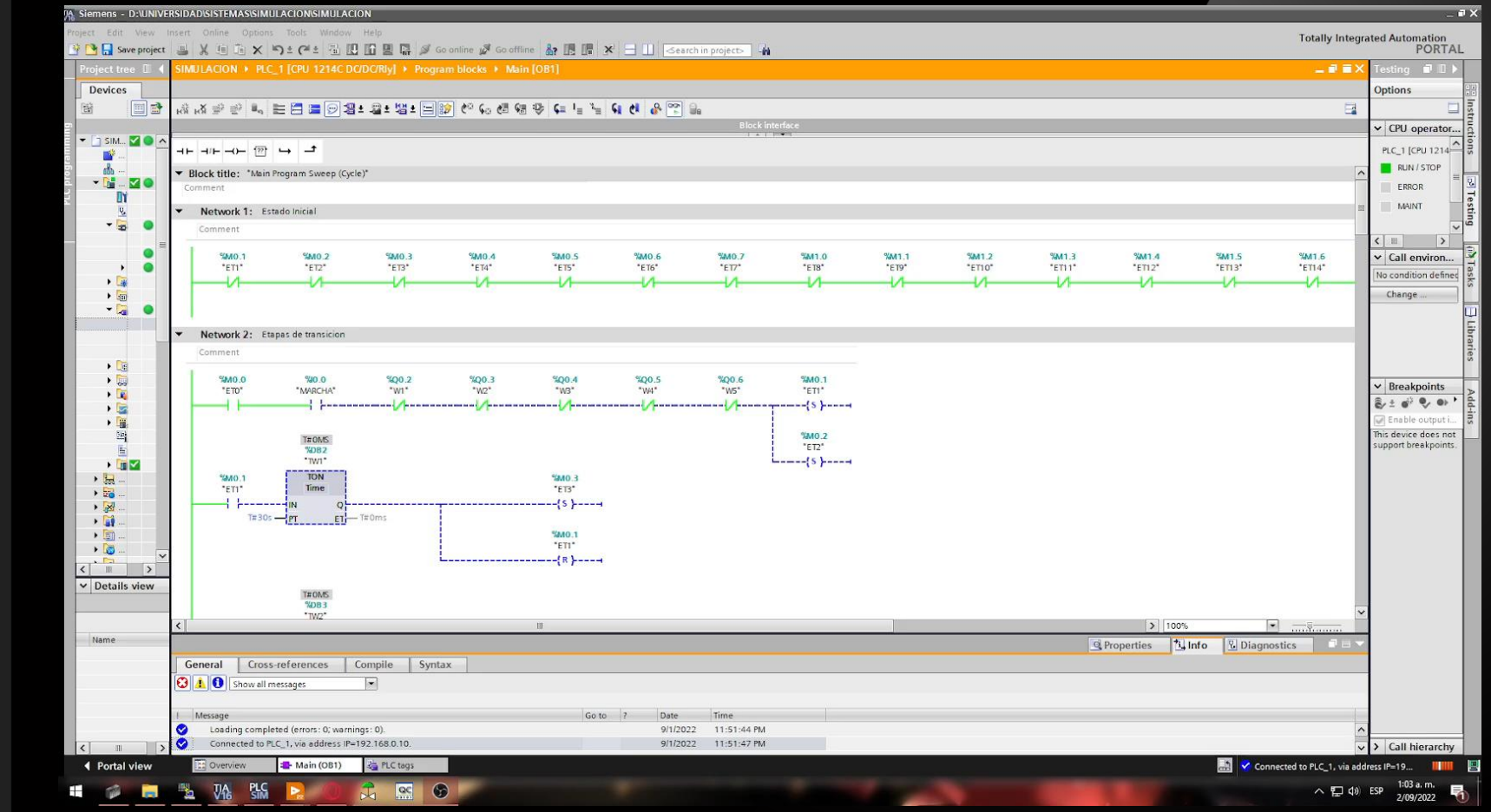
Item ID	Data Type	Value	Timestamp	Quality
SIMU.SIMUOP._R...	Byte	0	00:30:10.861	Good
SIMU.SIMUOP._Slot	Byte	1	00:30:10.861	Good
SIMU.SIMUOP.ET0	Boolean	0	00:43:35.066	Good
SIMU.SIMUOP.ET1	Boolean	0	00:44:05.590	Good
SIMU.SIMUOP.ET...	Boolean	0	00:42:13.956	Good
SIMU.SIMUOP.ET...	Boolean	0	00:41:54.548	Good
SIMU.SIMUOP.ET...	Boolean	0	00:42:35.054	Good
SIMU.SIMUOP.ET5	Boolean	0	00:44:25.378	Good
SIMU.SIMUOP.ET6	Boolean	1	00:44:14.787	Good
SIMU.SIMUOP.ET9	Boolean	1	00:44:25.378	Good
SIMU.SIMUOP.MA...	Boolean	0	00:30:10.862	Good
SIMU.SIMUOP.TA...	Boolean	0	00:41:54.548	Good
SIMU.SIMUOP.TA...	Boolean	0	00:43:44.540	Good
SIMU.SIMUOP.W1	Boolean	1	00:44:14.787	Good
SIMU.SIMUOP.W2	Boolean	0	00:44:14.787	Good
SIMU.SIMUOP.W3	Boolean	0	00:42:13.956	Good
SIMU.SIMUOP.W4	Boolean	1	00:44:25.378	Good
SIMU.SIMUOP.W5	Boolean	0	00:42:35.054	Good

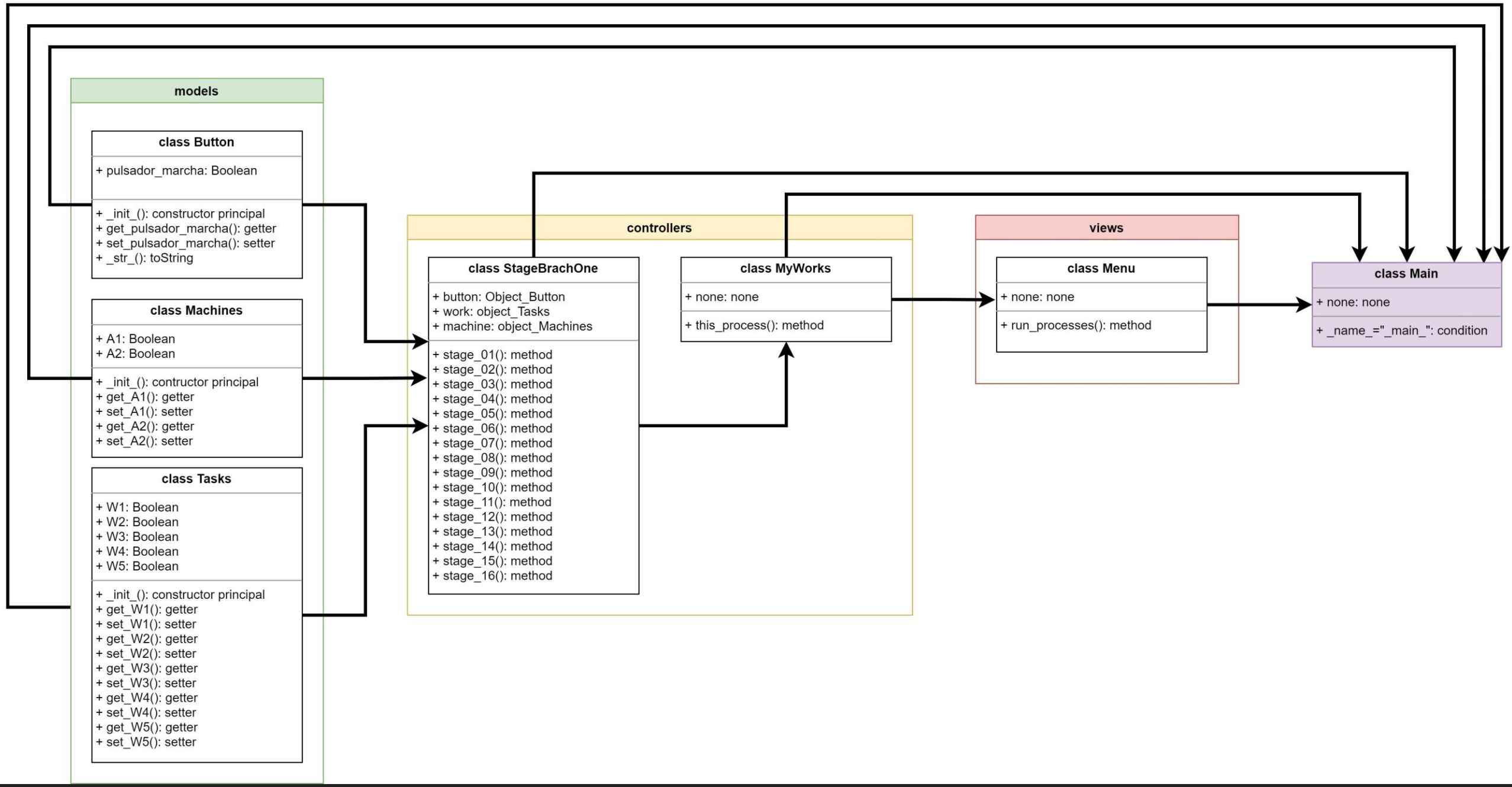

W1
W3
W4
W5
TANQUE A
Marcha
W1
W2
W3
W5
TANQUE B
SISTEMA
APAGADO

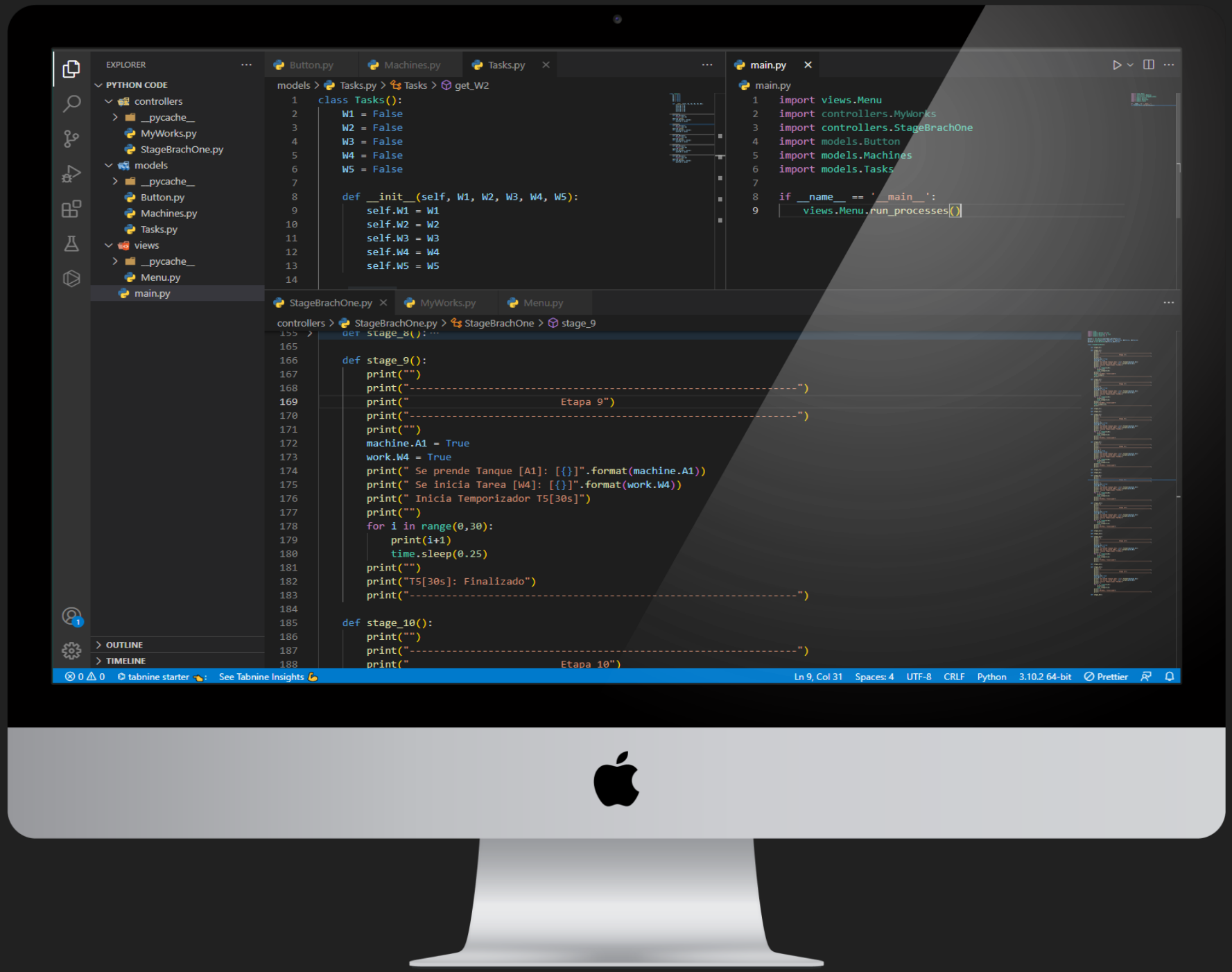

W1
W3
W4
W5
TANQUE A
Marcha
W1
W2
W3
W5
TANQUE B
SISTEMA
APAGADO


Network 3: ETAPAS
Comment
%M0.1 "ET1"
%Q0.0 "TANQUEA"
%Q0.2 "W1"
%M0.2 "ET2"
%Q0.1 "TANQUEB"
%Q0.3 "W2"
%M0.5 "ET5"
%Q0.4 "W3"
%Q0.0 "TANQUEA"
%M0.6 "ET6"
%Q0.1 "TANQUEB"
%Q0.2 "W1"
%M1.1 "ET9"
%Q0.5 "W4"
%Q0.0 "TANQUEA"
%M1.2 "ET10"
%Q0.1 "TANQUEB"
%Q0.4 "W3"
%M1.5 "ET13"
%Q0.0 "TANQUEA"
%Q0.6 "W5"
%M1.7 "ET15"
%Q0.1 "TANQUEB"
%Q0.6 "W5"
%M0.0 "ET0"
"MARCHA"
%Q0.2 "W1"
%Q0.3 "W2"
%Q0.4 "W3"
%M1.0 "ET8"
%M1.2 "ET10"
%M0.3 "ET3"
%M0.4 "ET4"
%M0.7 "ET7"
%M1.4 "ET12"
%M1.6 "ET14"
%M2.0 "ET16"
TON Time
IN
PT
Q
ET
T#0ms
T#30s
T#40s
T#20s
T#50s
T#70s


Untitled 1
File Edit View Project Operate Tools Window Help
stop
STOP
W1
W3
W4
W5
TANQUE A
Marcha
W1
W2
W3
W5
TANQUE B
SISTEMA
APAGADO
Untitled Project 1/My Computer
Untitled 1 Block Diagram *
File Edit View Project Operate Tools Window Help
TANQUE A
TANQUEA
TANQUEB
TANQUE B
ET1
ET5
ET9
ET13
ET2
ET6
ET10
ET15
ET0
MARCHA
stop
Untitled Project 1/My Computer
ESP
12:55 a. m.
2/09/2022


Siemens - D:\UNIVERSIDAD\SISTEMAS\SIMULACION\SIMULACION
Totally Integrated Automation PORTAL
SIMULACION ▸ PLC_1 [CPU 1214C DC/DC/Rly] ▸ Program blocks ▸ Main [OB1]
Block title: "Main Program Sweep (Cycle)"
Network 1: Estado inicial
%M0.1 "ET1" %M0.2 "ET2" %M0.3 "ET3" %M0.4 "ET4" %M0.5 "ET5" %M0.6 "ET6" %M0.7 "ET7" %M1.0 "ET8" %M1.1 "ET9" %M1.2 "ET10" %M1.3 "ET11" %M1.4 "ET12" %M1.5 "ET13" %M1.6 "ET14"
Network 2: Etapas de transicion
%M0.0 "ET0" %I0.0 "MARCHA" %Q0.2 "W1" %Q0.3 "W2" %Q0.4 "W3" %Q0.5 "W4" %Q0.6 "W5" %M0.1 "ET1"
%M0.2 "ET2"
T#0MS %DB2 "TW1"
TON Time
IN Q PT ET
T#30s T#0ms
%M0.3 "ET3"
%M0.1 "ET1"
T#0MS %DB3 "TW2"
Testing
Options
CPU operator...
PLC_1 [CPU 1214
RUN / STOP
ERROR
MAINT
Call environ...
No condition defined
Change ...
Breakpoints
This device does not support breakpoints.
Call hierarchy
Project tree
Devices
Details view
Name
Properties Info Diagnostics
General Cross-references Compile Syntax
Show all messages
Message Go to ? Date Time
Loading completed (errors: 0; warnings: 0). 9/1/2022 11:51:44 PM
Connected to PLC_1, via address IP=192.168.0.10. 9/1/2022 11:51:47 PM
Portal view Overview Main (OB1) PLC tags
Connected to PLC_1, via address IP=19...
ESP 1:03 a. m. 2/09/2022


models
class Button
+ pulsador_marcha: Boolean
+ _init_(): constructor principal
+ get_pulsador_marcha(): getter
+ set_pulsador_marcha(): setter
+ _str_(): toString
class Machines
+ A1: Boolean
+ A2: Boolean
+ _init_(): contructor principal
+ get_A1(): getter
+ set_A1(): setter
+ get_A2(): getter
+ set_A2(): setter
class Tasks
+ W1: Boolean
+ W2: Boolean
+ W3: Boolean
+ W4: Boolean
+ W5: Boolean
+ _init_(): constructor principal
+ get_W1(): getter
+ set_W1(): setter
+ get_W2(): getter
+ set_W2(): setter
+ get_W3(): getter
+ set_W3(): setter
+ get_W4(): getter
+ set_W4(): setter
+ get_W5(): getter
+ set_W5(): setter
controllers
class StageBrachOne
+ button: Object_Button
+ work: object_Tasks
+ machine: object_Machines
+ stage_01(): method
+ stage_02(): method
+ stage_03(): method
+ stage_04(): method
+ stage_05(): method
+ stage_06(): method
+ stage_07(): method
+ stage_08(): method
+ stage_09(): method
+ stage_10(): method
+ stage_11(): method
+ stage_12(): method
+ stage_13(): method
+ stage_14(): method
+ stage_15(): method
+ stage_16(): method
class MyWorks
+ none: none
+ this_process(): method
views
class Menu
+ none: none
+ run_processes(): method
class Main
+ none: none
+ _name_="_main_": condition


EXPLORER
PYTHON CODE
controllers
__pycache__
MyWorks.py
StageBrachOne.py
models
__pycache__
Button.py
Machines.py
Tasks.py
views
__pycache__
Menu.py
main.py
OUTLINE
TIMELINE
Button.py
Machines.py
Tasks.py
models > Tasks.py > Tasks > get_W2
class Tasks():
W1 = False
W2 = False
W3 = False
W4 = False
W5 = False
def __init__(self, W1, W2, W3, W4, W5):
self.W1 = W1
self.W2 = W2
self.W3 = W3
self.W4 = W4
self.W5 = W5
main.py
import views.Menu
import controllers.MyWorks
import controllers.StageBrachOne
import models.Button
import models.Machines
import models.Tasks
if __name__ == '__main__':
views.Menu.run_processes()
StageBrachOne.py
MyWorks.py
Menu.py
controllers > StageBrachOne.py > StageBrachOne > stage_9
def stage_9():
print("")
print("----------")
print(" Etapa 9")
print("----------")
print("")
machine.A1 = True
work.W4 = True
print(" Se prende Tanque [A1]: [{}]".format(machine.A1))
print(" Se inicia Tarea [W4]: [{}]".format(work.W4))
print(" Inicia Temporizador T5[30s]")
print("")
for i in range(0,30):
print(i+1)
time.sleep(0.25)
print("")
print("T5[30s]: Finalizado")
print("----------")
def stage_10():
print("")
print("----------")
print(" Etapa 10")
tabnine starter
See Tabnine Insights
Ln 9, Col 31
Spaces: 4
UTF-8
CRLF
Python
3.10.2 64-bit
Prettier