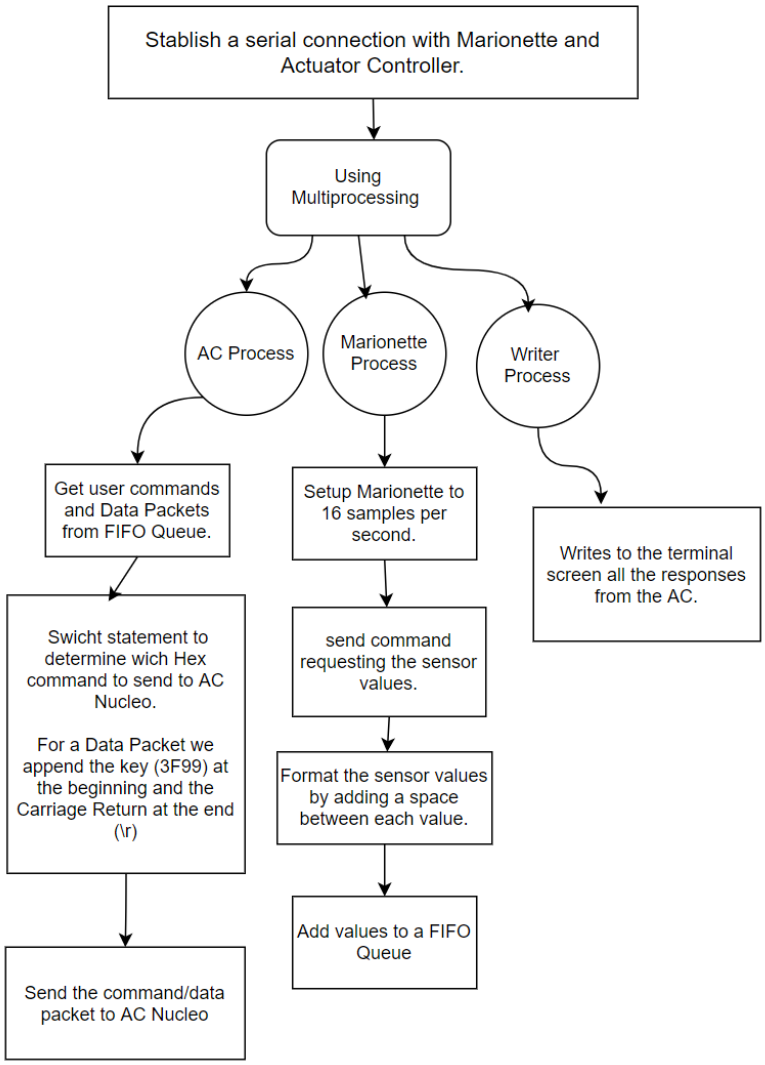
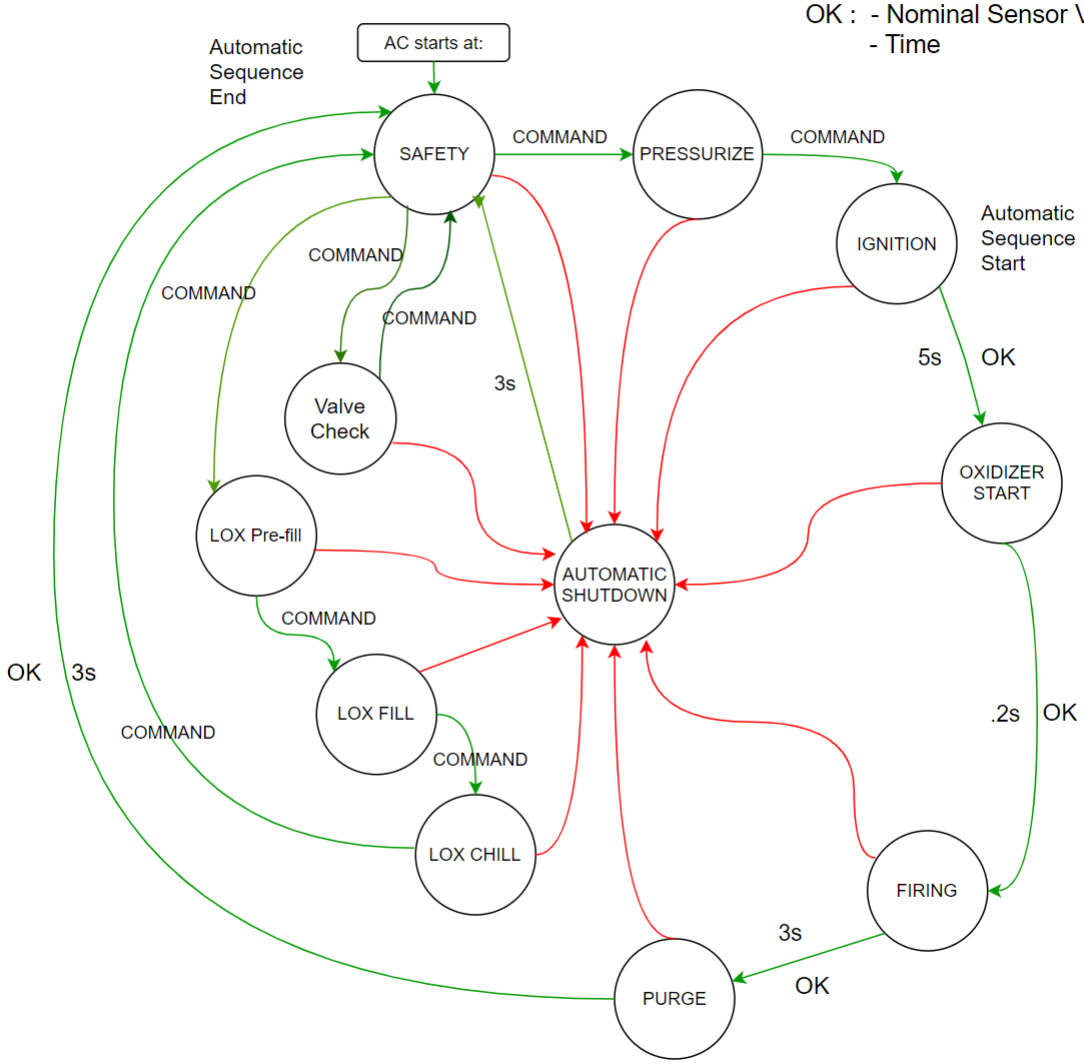
BB_AI Python Script



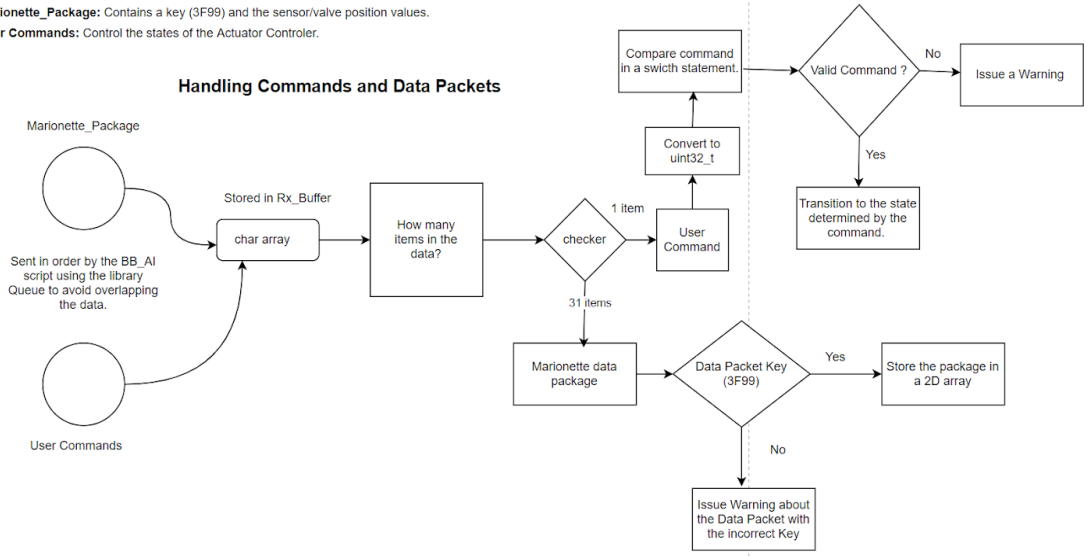
Actuator Controller FSM Rev 3.0

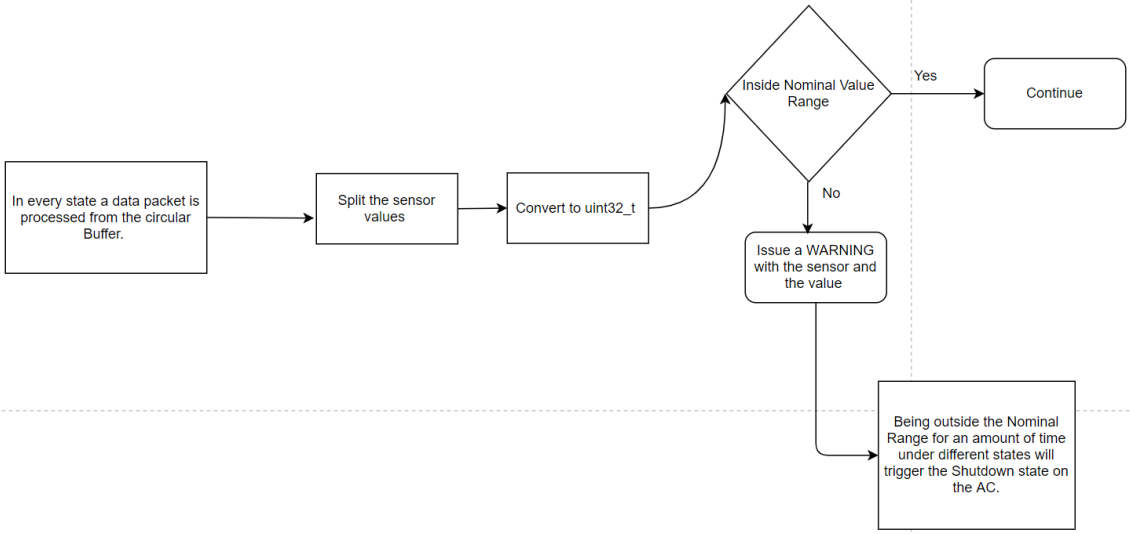
OK : - Nominal Sensor Value
- Time

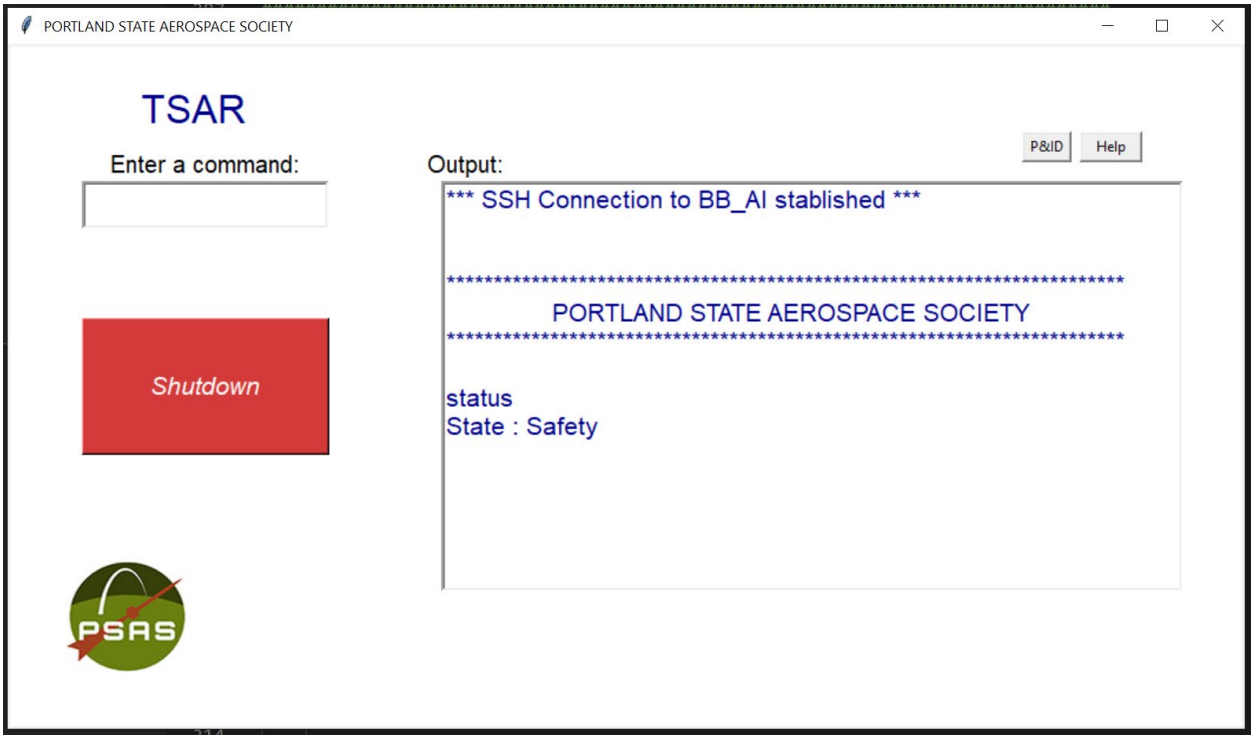


Marionette_Package: Contains a key (3F99) and the sensor/valve position values.
User Commands: Control the states of the Actuator Controler.

Handling Commands and Data Packets






PORTLAND STATE AEROSPACE SOCIETY
TSAR
Enter a command:
Output:
P&ID
Help
*** SSH Connection to BB_AI stablished ***
****
PORTLAND STATE AEROSPACE SOCIETY
****
status
State : Safety
Shutdown
PSAS

Help

GENERAL COMMANDS	VALVE CHECK COMMANDS	VALVES
status: Current state	cyclevalves: Automatic valve check.	PV-F01: Fuel Pressure
loxprefill	Turn ON valve: pvf01on	PV-L01: Lox Pressure
loxfill	Turn OFF Valve: pvf01off	PV-P01: Fuel Purge N2
loxchill	alloff: Turns igniter and valves OFF	SOV-F01: Fuel Vent
safety		PV-F02: Fuel Main
pressurize		PV-L03: Lox Main
ignition		PV-LF01: Lox Fill
valvecheck		PV-L02: Lox Vent
off: Terminate AC software.		PV-P02: Lox Purge
exit: Ends BB_AI script		IG: Igniter

resetac: Resets the AC software

resetm : Reset Marionette software

clear: clears the output screen

VALID TRANSITIONS BETWEEN STATES

Safety -> Valve Check -> Safety

Safety -> Lox Pre Fill -> Lox Fill -> Lox Chill -> Safety -> Pressurize -> Ignition

(Auto Start): Ignition (5s) -> Oxidizer Start (.2s) -> Firing(3s) -> Purge(3s) -> Safety (Auto End)

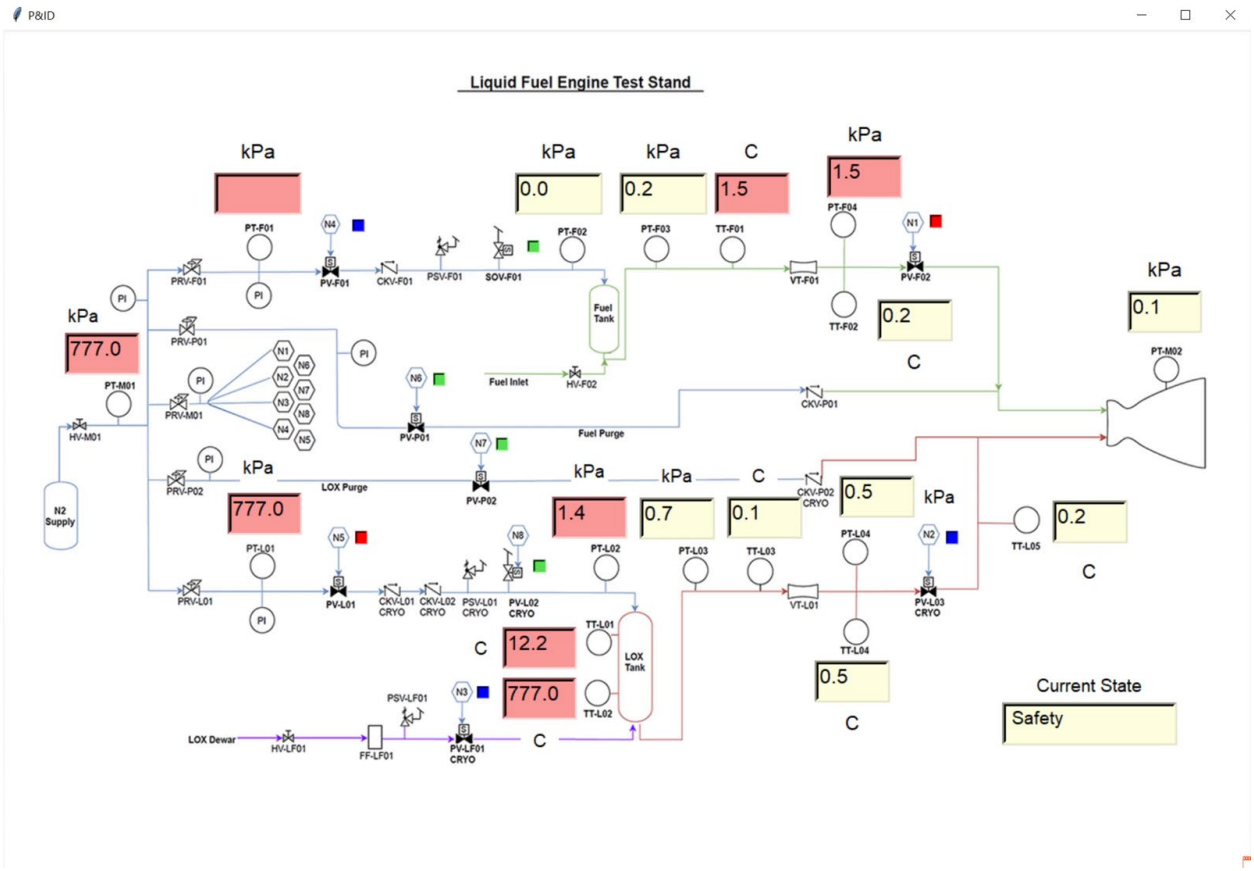
Sensor values:

- Box color within nominal value range: Light Yellow
- Box color outside nominal value range: Light Red

Valve indicator:

- Square valve ON: Green
- Square valve OFF: Blue
- Square valve error: Red

PSAS


P&ID
Liquid Fuel Engine Test Stand
kPa
kPa
kPa
C
kPa
1.5
0.0
0.2
1.5
PT-F01
PT-F02
PT-F03
TT-F01
PT-F04
N4
N1
PRV-F01
PV-F01
CKV-F01
PSV-F01
SOV-F01
VT-F01
PV-F02
Fuel Tank
TT-F02
0.2
C
kPa
0.1
PI
kPa
777.0
PRV-P01
PT-M01
PRV-M01
N1
N2
N3
N4
N5
N6
N7
N8
HV-M01
Fuel Inlet
HV-F02
CKV-P01
PT-M02
PV-P01
Fuel Purge
PRV-P02
kPa
LOX Purge
kPa
kPa
C
CKV-P02 CRYO
0.5
kPa
N2 Supply
777.0
PV-P02
1.4
0.7
0.1
PT-L01
PT-L02
PT-L03
TT-L03
PT-L04
N2
TT-L05
0.2
C
PRV-L01
PV-L01
CKV-L01 CRYO
CKV-L02 CRYO
PSV-L01 CRYO
PV-L02 CRYO
VT-L01
PV-L03 CRYO
TT-L04
TT-L01
LOX Tank
C
12.2
0.5
C
PSV-LF01
N3
777.0
TT-L02
Current State
LOX Dewar
HV-LF01
FF-LF01
PV-LF01 CRYO
C
Safety