### SETUP PLAN

Virtual assistant

Run the server code on the server computer on preferred IDE

Run the client code on the client computer. Face recognition and the chatbot will run. Interact with the bot in English. Give the setpoint

INPUTS

|  |  |
| --- | --- |
| Name | Logical Address |
| Start memory | %M0.2 |
| Stop memory | %M0.3 |
| Setpoint | %DB3.DBD0 |
| pH sensor input | %IW98 |
| Scaled pH input | % MD120 |

OUTPUTS

|  |  |
| --- | --- |
| Name | Logical Address |
| PID out | %MD124 |
| Metering pump output | %QW96 |
| Circulation pump | %Q0.4 |
| Tank outlet valve | %Q0.7 |
| Tank inlet valve | %Q0.6 |
| Agitator motor | %Q0.5 |

##### PLC Program

Include all the necessary PLC Tag Inputs and Outputs in the PLC program.

Program the proper sequential logic for the physical station operation first.

Create a simillar but alternate path of logic to that of the physical station,but applying it to the signals that will be mapped to the virtual model in Siemens NX.

#### Virtual Model

With a PC connected to the ethernet switch coupled with the PLC, launch the Siemens NX software and open the physical station’s twin model in Mechatronics Concept Designer(MCD).

Connect the PC to the PLC via the standard Industrial Ethernet Interface.

Run the integration program that will allow mapping of the PLC signals to the Signals defined in Mechatronics Concept Designer.

In MCD map the virtual signals to their corresponding signals from the PLC.