Quenching Tank Temperature Monitoring System Developer Guidelines

1. Edit the SQL connection string as per current server credentials.

```
conn_str = (
    "Driver={ODBC Driver 17 for SQL Server};"
    "Server=10.7.228.186;" #Add host IP to which SQL Server is connected here
    "Port=1433;"  # add the port no. to which sql server listens
    "Database=QuenchTank;"  #database name
    "UID=jack;"  # Replace with your SQL Server username
    "PWD=jack123;"  # Replace with your SQL Server password
)
```

2. Change the unit IDs as configured in the PID Controllers.

```
    #print("Connecting to the server...")
    connection = modbus_client.connect()
    if(connection==True):
        moxa_connection_label.config(text=str("MOXA: CONNECTED..! IP: 10.7.228.186"), foreground="Green")

        #Quench Tank 2 Temperature
        try:
            inpReg2 = modbus_client.read_input_registers(0x06,1,unit=2)
            qT2Temp = (inpReg2.registers[0]/10)
            QT2_temp_label.config(text=str(qT2Temp)+"°C",background="blue",font=('Arial','50','bold'))
            qT2TempQueue.put(qT2Temp)
        except Exception as e:
            qT2Temp=0
            QT2_temp_label.config(text="PID Disconnected", background="red", font=('Arial','20','bold'))
            qT2TempQueue.put(qT2Temp)

        #Quench Tank 3 Temperature
        try:
            inpReg3 = modbus_client.read_input_registers(0x06,1,unit=3)
            qT3Temp = (inpReg3.registers[0]/10)
            QT3_temp_label.config(text=str(qT3Temp)+"°C",background="blue",font=('Arial','50','bold'))
            qT3TempQueue.put(qT3Temp)
        except Exception as e:
```

3. Change Slave ID labels accordingly.

```
#MODBUS PID configuration
QT2_Modbus_COM_port_label = Label(root, text="SLAVE ID: 1", font=('Arial','12','bold'), foreground="black")
QT3_Modbus_COM_port_label = Label(root, text="SLAVE ID: 2", font=('Arial','12','bold'), foreground="black")
QT4_Modbus_COM_port_label = Label(root, text="SLAVE ID: 3", font=('Arial','12','bold'), foreground="black")
QT5_Modbus_COM_port_label = Label(root, text="SLAVE ID: 4", font=('Arial','12','bold'), foreground="black")
```

4. Settings password configuration

```
#GLOBAL VARIABLES
global settings_password
settings_password  = "mypassword"
```

5. Installing Dependencies

i. Install Python (https://www.python.org/downloads/)
ii. Pip Python Package Installer (https://www.youtube.com/watch?v=KtxCiaDjQgw)
iii. If there is an issue with pip then Google – Pip environment variables path setup.

Make sure the following libraries are installed.

Pyodbc

Pymodbus v2.4.0

Tkinter

Time

Threading

Matplotlib

Json

Queue

6. Package file creation

Refer the following video for package file creation.

https://www.youtube.com/watch?v=Iv_dECet_oM&list=PL9NcF0jF2vxbZ7FYNvMQLtHwVkwPz_eyL&index=4

To ensure backwards compatibility with Windows 7. Create package files in a Windows 7 environment.

Write the following the command to include the QTTMS icon image. Replace the “Images\QTTMS logo.ico” with actual icon file path.

pyinstaller .\QTTMS_v1.0_runtime.py --onefile -w --icon="Images\QTTMS logo.ico" --add-data="Images\QTTMS logo.ico;."

7. Future scope of development

Storing the database connection string in an encrypted manner.

Storing the settings password in an encrypted manner.