Main Projects including SW Developing and HW integration

1. **PWRS Module**

SPS5000X (Siglent) – Programmable Switching DC Power Supply

Developed a new LabVIEW module from scratch, integrated into DQMH for modular, event-driven operation. The design increased efficiency and ensured easy integration into existing test systems.

PWER401L (Kikusui) – DC Power Supply

Used as a reference and/or testing module, with limited interaction compared to full development.

2. UPS Module

Daker DK Plus (Legrand) – Single-phase UPS

Module interaction including testing and potential further development for integration into test systems.

3. Software Sensing Method

SPS5000X (Siglent) – Set Voltage

SiglentDMM Module – Read Voltage

Attempted to implement software-based compensation instead of hardware-based. The approach ultimately failed testing due to real-time constraints (read/write timing mismatches), where hardware solutions remained more reliable.

4. Datalogger Module

Agilent 34970 (Keysight) – Data Logger Switch Unit

Implemented automatic TDMS file splitting at midnight (00:00): a new TDMS file was created with the new date and writing is on going, while the previous one was saved at 23:59.

5. Compression Task

SDM3055 (Siglent) – Digital Multimeter

Provided LabVIEW support for integrating a Python script that compresses the TDMS file from the previous day, saves it, and continues logging with daily split-and-compression workflow.

6. FGEN Module

SDG6022X (Siglent) – Pulse/Arbitrary Waveform Generator

Extended the base class into a new LabVIEW OOP entity for SDG6022X, fully developed from scratch and integrated into the modular testing system.

7. FGEN Module

Ametek Autowave (Ametek) – Signal Generator with parameter iteration

Similarly, extended the base class and created a new LabVIEW OOP entity for Ametek Autowave, developed from scratch for seamless system integration.

8. nVent by SCHROFF and PXIe Interface Investigation

Carried out investigation and testing related to PXIe interfaces and nVent hardware integration.

Applications

- Name2Mail App – Lightweight LabVIEW app to generate employee email addresses based on name input.
- MAN PTM Measurements Viewer App – Visualization tool for measurement data.
- Low-level App for Ametek Autowave – Direct instrument communication and control.
- Low-level App for Siglent SDG6022X – Direct instrument communication and control.
- Signal Converter App – Converter for signal file formats (.SGN → .CSV). Considering the fact that, in the past we used a Tektronix (AFG) generator that has .sgn file format. Without this App, we should create again the signal files.

Other Contributions

SW and HW interactions with laboratory colleagues when requested, including troubleshooting, configuration, and technical support in day-to-day activities.

Academic Level Projects

- Prototype of PCB Temperature Monitoring App
- Simple Weather Station with Arduino
- Robotic Arm with Arduino
- Filter Simulation App