INDUSTRY 4.0: AUTOMATED DUAL LIQUID LEVEL CONTROL SYSTEM

Using TIA Portal and SCADA

Associated with Hochschule Schmalkalden

HOCHSCHULE SCHMALKALDEN

UNIVERSITY OF APPLIED SCIENCES

PLC PROGRAM OPTIMIZATION

- Enhancing Conveyor and Filling System Efficiency

- PLC System: Siemens S-1200 with TIA Portal

Key Activities:

- Optimization of the PLC program for efficient operation.

- Use of Ladder Logic (LAD), Functional Block Diagrams (FBD), and Structured Text (SCL).

- Focus: Improving operational efficiency and incorporating PID control for precise regulation of process variables.
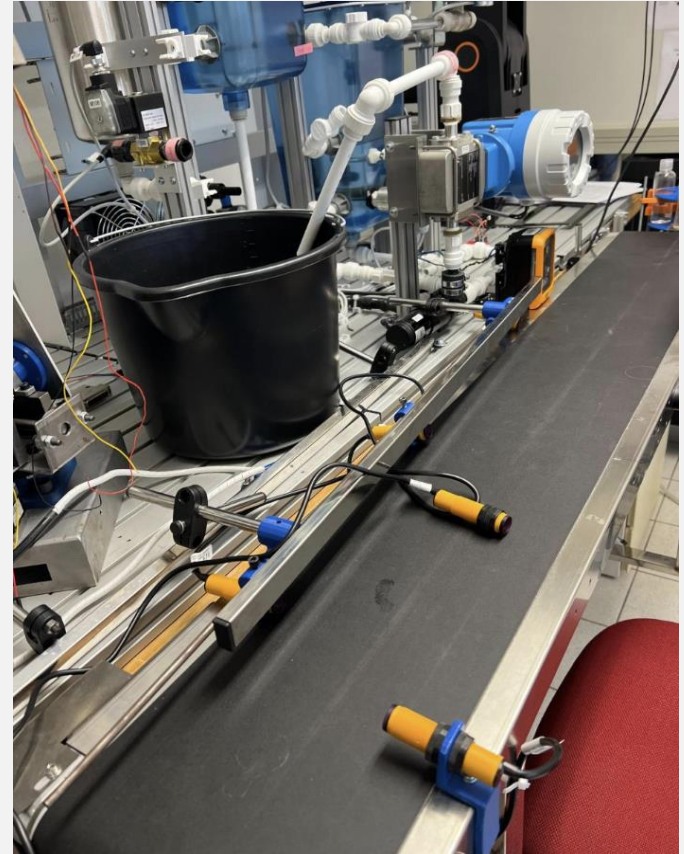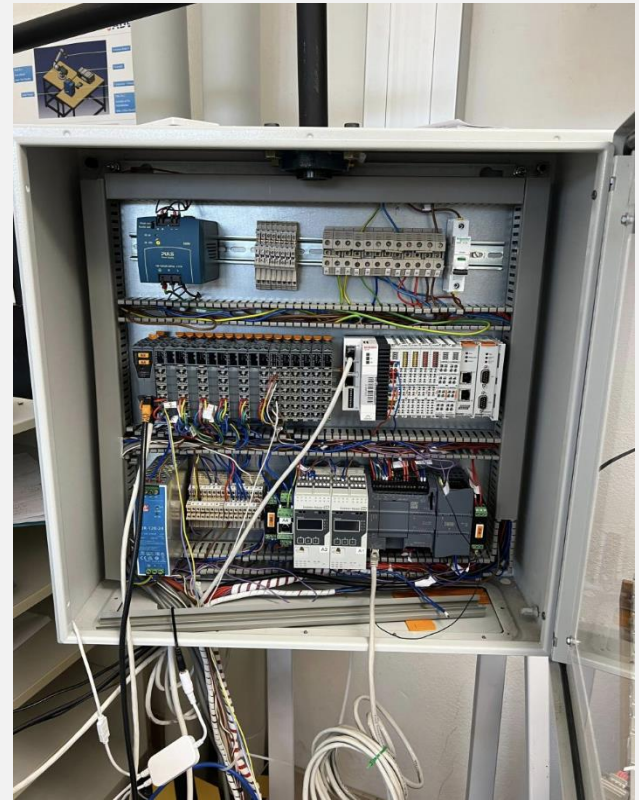

1.1 Conveyor Belt

SCADA SYSTEM DESIGN

- Real-Time Data Monitoring and Control

- Objective: Develop an Industry 4.0-compliant SCADA system for optimal plant operations.

Key Features:

- Real-time data visualization from various processes.

- Secure data storage using MySQL Workbench.

- User-friendly interface for monitoring and control.

1.2 PLC Controller

TOOLS AND TECHNOLOGIES

- Key Tools and Technologies Used

- Hardware: Siemens S-1200 PLC

- Software: TIA Portal, MySQL Workbench

- Programming Languages: Ladder Logic (LAD), Functional Block Diagrams (FBD), Structured Text (SCL)

- Control Strategy: PID Control

1.3 MySQL Workbench

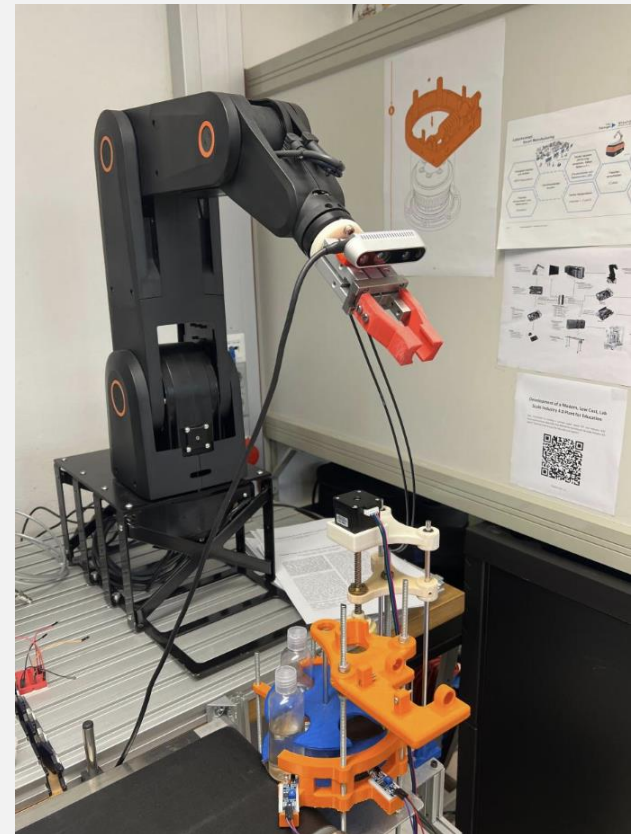1.4 Siemens S7-1200

CONCLUSION & FUTURE WORK

- Project Impact and Next Steps

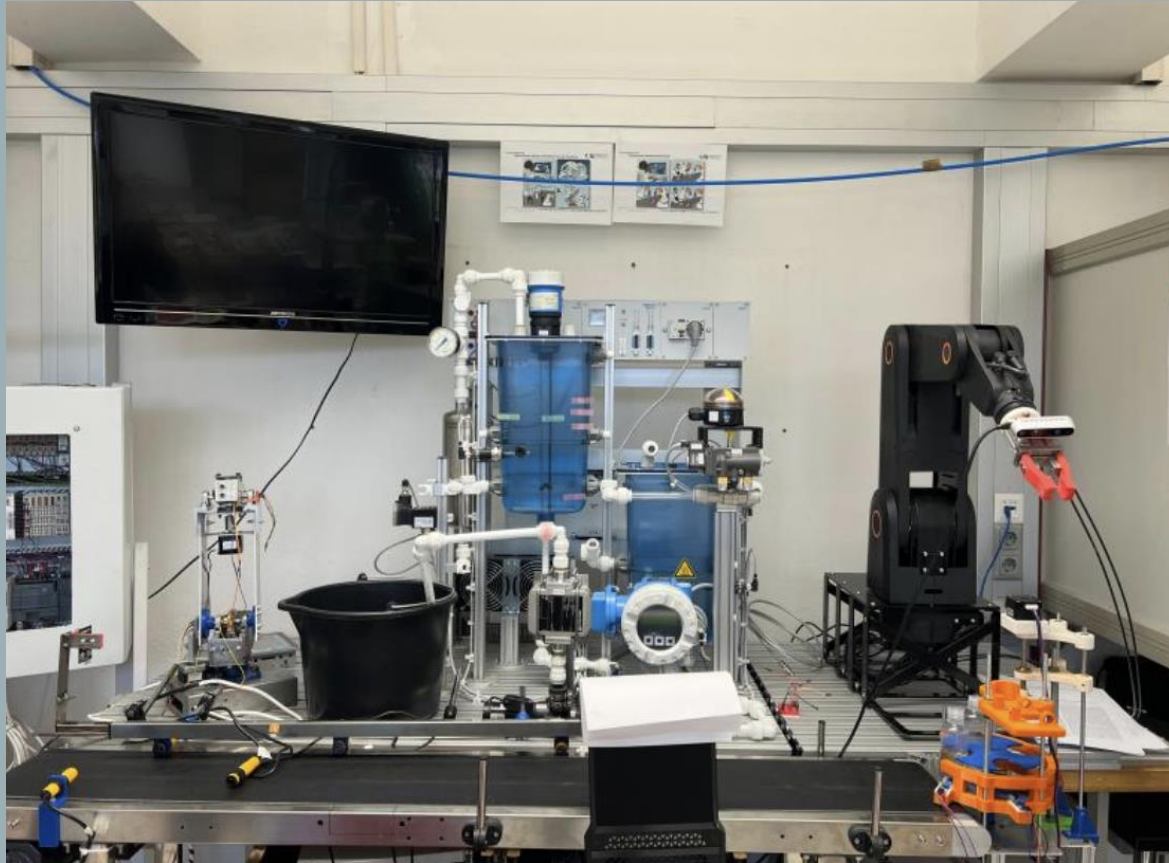- Impact: Improved automation and efficiency in liquid level control.

Future Work:

- Potential expansions and enhancements.

- Integration with more advanced Industry 4.0 technologies.

1.5 Robotic Arm

ENTIRE PROJECT

1.6 Automated Dual Liquid Level Control System with TIA Portal and SCADA