Chair of Bioseparation Engineering
TUM School of Engineering and Design
Technical University of Munich

BioSE

Master's Thesis

Automation of a Nanoparticle Synthesis Plant

Keywords: Automation, Process Control, Bioseparation, Synthesis

Project Description

This Master's thesis focuses on the automation of a nanoparticle synthesis plant, specifically designed for High Gradient Magnetic Separation (HGMS) applications. HGMS is a technology used to separate industrial relevant biomolecules. The functional properties of these nanoparticles are known to be influenced by a range of synthesis parameters, such as stirrer speed and the ratio of reactants. Precise control over these variables is key to producing nanoparticles with the desired specifications. Implementing an automated synthesis process enables the meticulous regulation of these factors, ensuring consistent nanoparticle quality.

Building upon existing Siemens TIA Portal PLC programming, the project will further automate the plant to improve production scalability and process control.

For application please send me a short email with your CV and the most recent transcript of your grades.

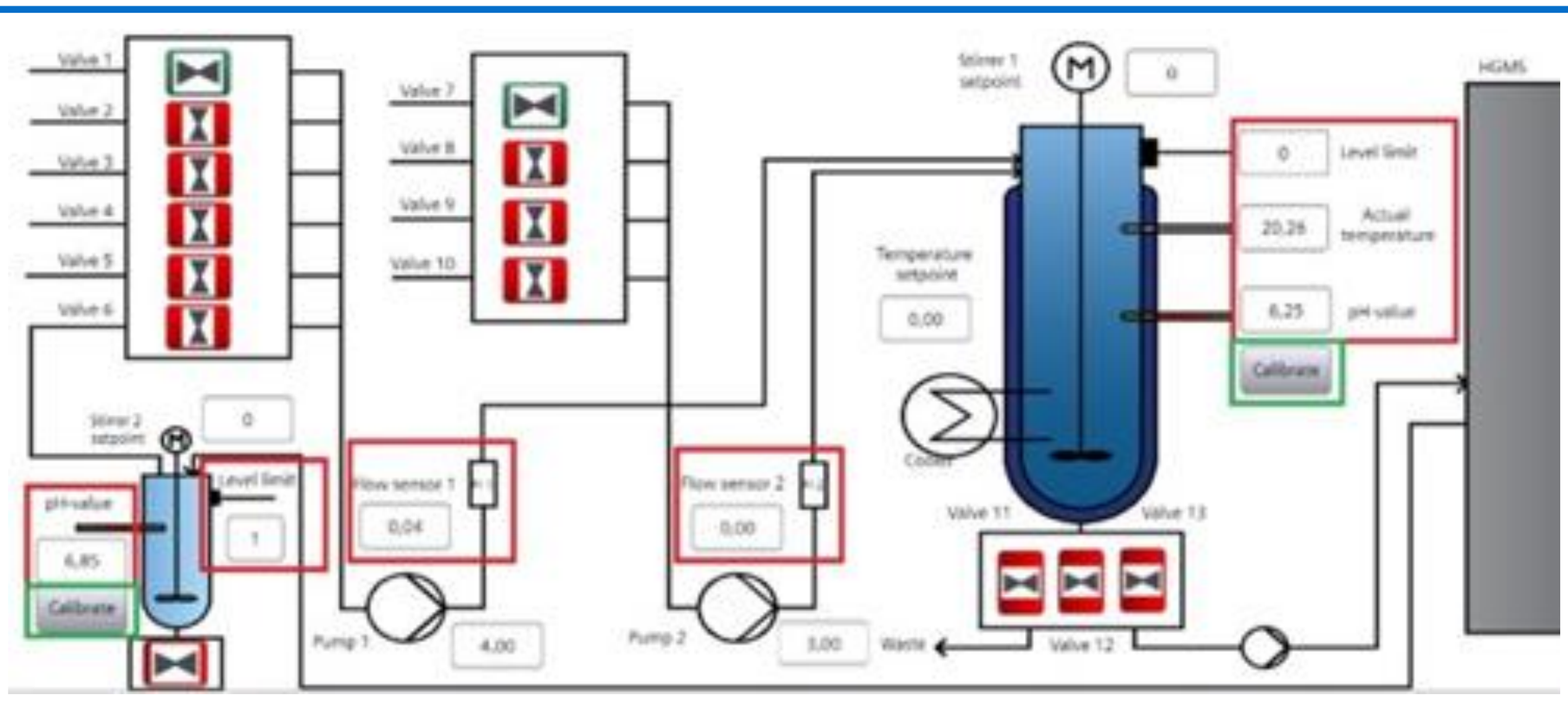
Research objectives

1. Evaluation and enhancement of the existing PLC programming using Siemens TIA Portal
2. Integration of the PLC into the process control system
3. Plant commissioning and stability tests

Start: flexible

Profile

- Structured and independent work
- Proficiency in automation and process control
- Knowledge with Siemens TIA Portal
- Background in Bioprocess-, Chemical-, Mechanical-, or Automation Engineering is ideal, but not required



Robin Karl | robin.karl@tum.de | Room MW1133