Research Internship / HIWI:

Physical Demonstrator: Implementation and Reconfiguration of a Distributed Control System

Context

Resilience is an important characteristic of future control systems. Resilience is the ability to react to unforeseen events and recover independently. In control system, this can be achieved through the means of dynamic reconfiguration. In this project, we want to implement a distributed control system and evaluate the dynamic reconfiguration capabilities, e.g. real-time behavior or determinism. The topic can be adapted to your interests and capabilities.
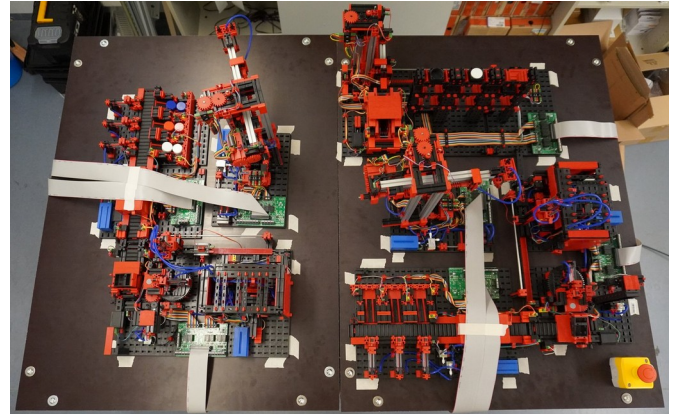
In this project, you get the opportunity to work on campus with a real physical demonstrator. This topic can not be done remotely.

Tasks

1. Familiarize yourself with the IEC 61499 and the corresponding runtime (4diac + FORTE)
2. Implement a (distributed) control application on a Raspberry Pi / PLC.
3. Evaluate the existing reconfiguration capabilities of the IEC 61499.
4. Assess the real-time behavior and

Requirements

- **Knowledge and interest in Automation Technology**
- **Raspberry Pi / Linux**
- **C / C++** (Basics)
- Python (Beneficial)
- IEC 61499 / 61131-3 / 61508 (Beneficial)

Contact

If you are interested in this project, please send your full application (CV, transcript of records, research interests, possible start dates) to Laurin Prenzel (**laurin.prenzel@tum.de).**

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