Integration of PRRT in NCSbench

Networked Control Systems, i.e. the interconnection of a control system over a communication network, are a fundamental building block of future industrial automation systems. To study NCS, the NCSbench platform [1,2] was developed allowing performance measurements of a real NCS. The platform is built using Lego, is developed in python, communicates over standard IP network interfaces and is fully open-source.

The analysis of NCSbench with wireless communication highlighted the problem of packet loss and delays on the NCS. In this project, the novel PRRT transport protocol [3,4] will be deployed on NCSbench to improve the communication performances with wireless communication.


Prerequisites

This work will consist of a significant amount of programming for embedded devices, and for a large part also of processing the measurement data.

Requirements:

- Strong C and Python programming skills.
- Good knowledge of wireless systems and protocols (WLAN).
- Basic knowledge of LTI control systems.
- Experience with python data processing tools is beneficial.
- Experience with Linux systems is recommended.

Advisors

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