

Abstract

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Real-time implementation of constrained control system on experimental hybrid plant using RT-Lab

In a real system, constraints develop due to different reasons such as actuator limits and safety requirements. The design of a control system that achieves system constraints without considerable effect on the overall system performance is called constrained control system. Many techniques for designing a control system with constraints are scattered in the literature. Some of them are implemented here. Controller design with constraints requires a real-time and fast operating system in order to achieve its goal successfully. RT-Lab is a real time operating system that runs in target and host node. The main feature and components of RT-Lab are introduced. Moreover, two different techniques of control design with constraints are discussed and implemented on an experimental hybrid plant using RT-Lab.