Dependable Internet of Things in Adverse Environments

The underlying goal of this project is to provide rigorous methods and tools for the systematic design of an Internet of Things that is resilient against failures due to adverse environments. The main topics addressed by the Institute of Automation and Control within the subproject **Dependable Multi-Agent Systems** are:

- **Scalable distributed fault diagnosis:** In contrast to centralized fault diagnosis, a distributed approach shows better scalability properties. It raises new issues, however, like the adequate partitioning of the system or the influence of communication network imperfections.
- **Dependable active fault tolerant control:** Based on the diagnosis algorithm, actions have to be taken in order to mitigate fault effects. Especially in redundantly actuated systems, control allocation methods can be used to overcome actuator failures. The goal is to give guaranteed performance bounds for the closed-loop control system under specific fault scenarios.

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