



Edge infrastructure reconfiguration of IoT systems using AI planning

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Project Description

IoT applications are often composed from different Quality of Service (QoS) requirements (e.g., timeliness, accuracy, privacy, etc.) to support application types such as: (i) *real-time*; (ii) *video streaming*; (iii) *emergency response*; (iv) *IoT analytics*; and (v) *transactional*. Such applications can leverage Edge-based infrastructures of smart buildings (messaging system, networking resources etc.) to exchange data with IoT devices (sensors/actuators) and messaging systems.

This project aims to enable the (re)configuration of Edge infrastructures based on the data flows produced from the deployed IoT devices in smart buildings. This will ensure reliable and robust data exchange regardless of the deployed IoT applications and their data recipients. To this end, we will leverage *Artificial Intelligence (AI) planning* and *adaptation* methodologies [1, 2, 3] to generate and execute optimal configuration plans for data exchange in smart buildings.

Project Objectives

The selected team will be working on the following:

- Design domain models for smart buildings by using description languages such as PDDL (Planning Domain Definition Language) [4].
- Define AI planning problems based on the defined PDDL domain models and the “on-the-fly” data flow properties.
- Leverage *Domain-Independent* AI planners (e.g., LPG [5], SGPLAN [6], FF [7]) to generate optimal configuration plans for the (re)configuration of Edge-based infrastructures in smart buildings.

Skills & qualities

- Fluent in English
- Familiarity with description languages such as PDDL is a plus but not compulsory.
- Familiarity with domain independent AI planners (e.g., LPG, SGPLAN, FF) is a plus but not compulsory.

Contact

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References and Additional Reading

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