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Home Manager

Home Manager is a prototype platform for the construction of Socio-Technical Smart Spaces and Smart Environments, in the wider Smart Living context. Accordingly, the reference scenario goes beyond the pure home management, in favor of a more general idea of home users immersed in the surrounding environment, with the twofold goal of enabling a rich interaction experience for the user in the interaction with the smart house, and anticipate his/her needs based both on the user's habits and policies, and on general system policies embedding global goals (e.g. energy saving).

The platform is inspired to the Butlers architecture and vision, and is designed as a multi-agent system on top of the TuCSoN coordination infrastructure.

As concerns the house, the system considers a house with independent devices (air conditioners, lights, etc.), each equipped with an agent to participate to the agent society. The coordination infrastructure, programmable via tuple centres, embeds the coordination laws required both to mediate among the different user's preferences and to pursue the overall system goals — in particular, to manage (limit) the overall energy consumption. As concerns the user's situatedness in space and time, the user's location — is tracked in real time thanks to the GPS and the other geo-localisation techniques embedded in modern smartphones — to enable intelligent reasoner agents to take some autonomous decisions (for instance, adjusting the air conditioner temperature), or possibly anticipate some user's needs, managing the related devices on the user's behalf (for instance, deducing the opportunity to switch on the oven, or post-pone the washing machine, etc.).

Main reference papers:

- The Butlers architecture with the Home Manager prototype, 2014
- The role model for Home Manager access control, 2014
- The Home Manager platform in the Butlers vision, 2015
- Building Smart Space on the Home Manager platform, 2016
- The Butlers Framework for Socio-Technical Smart Spaces, 2016
- Context Reasoning and Prediction in Smart Environments, 2017

Presentations

- Home Manager Context Reasoning and Prediction in Smart Environment@KES2017, Enrico Denti, 2017

Download

- Bitbucket repository, LGPL license

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