



How difficult it is detecting that a lamp is broken in a House?

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Home Automation Today



Home Automation Tomorrow



Heterogeneity	A lot of different and heterogeneous devices from many different vendors
Openness	coexistence of many interconnection standards
Large scale	Constantly increasing increase the number of devices in a house as cost reduces and the technology divide will reduce
Complex management	Autonomic Management

Project's Objective



Handle immersive scenarios (i.e., domotics) in which *invisible embedded systems need to continuously interact with human users*, in order to provide continuous sensed information and to react to service requests from the users themselves



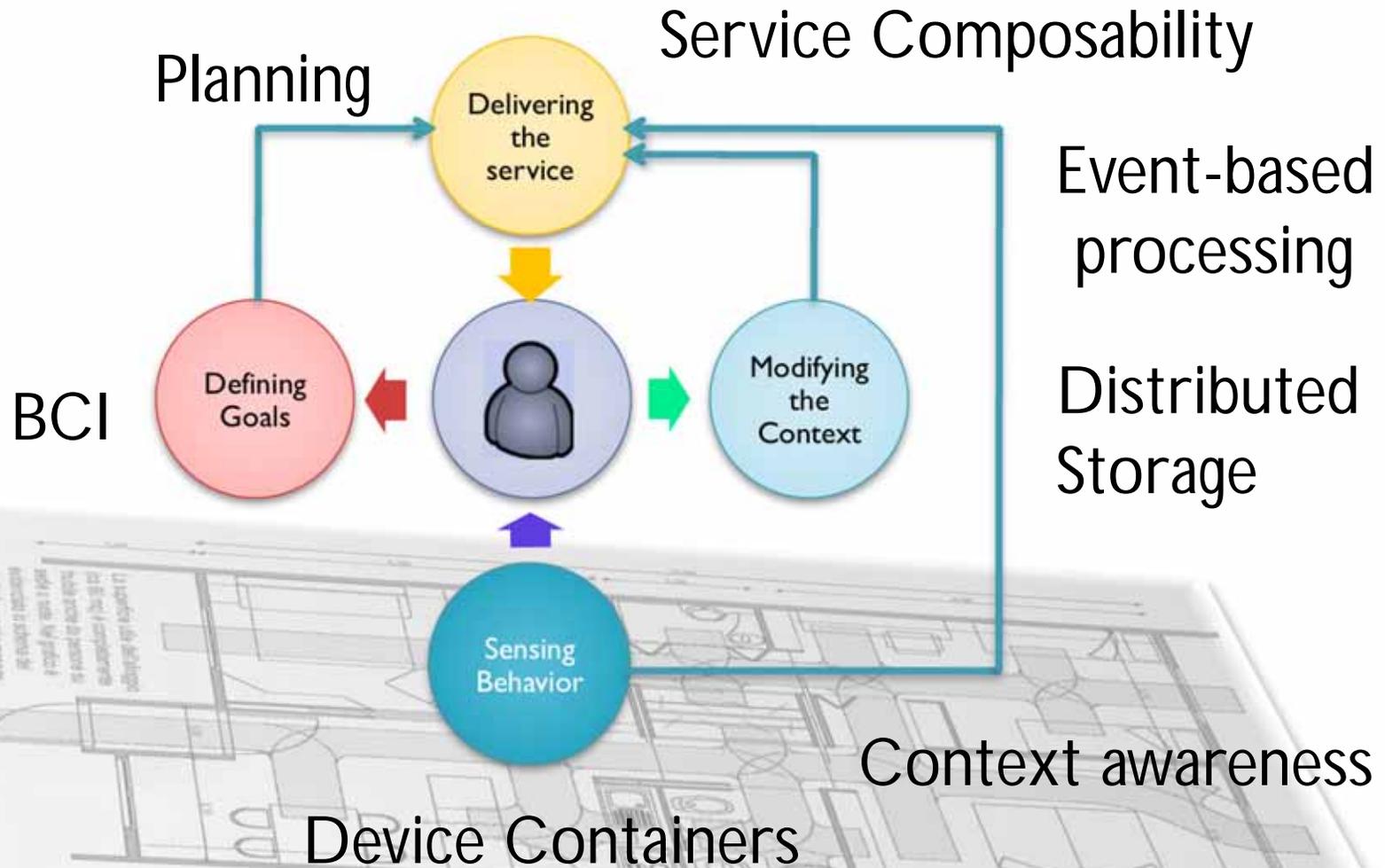
Project's Objectives

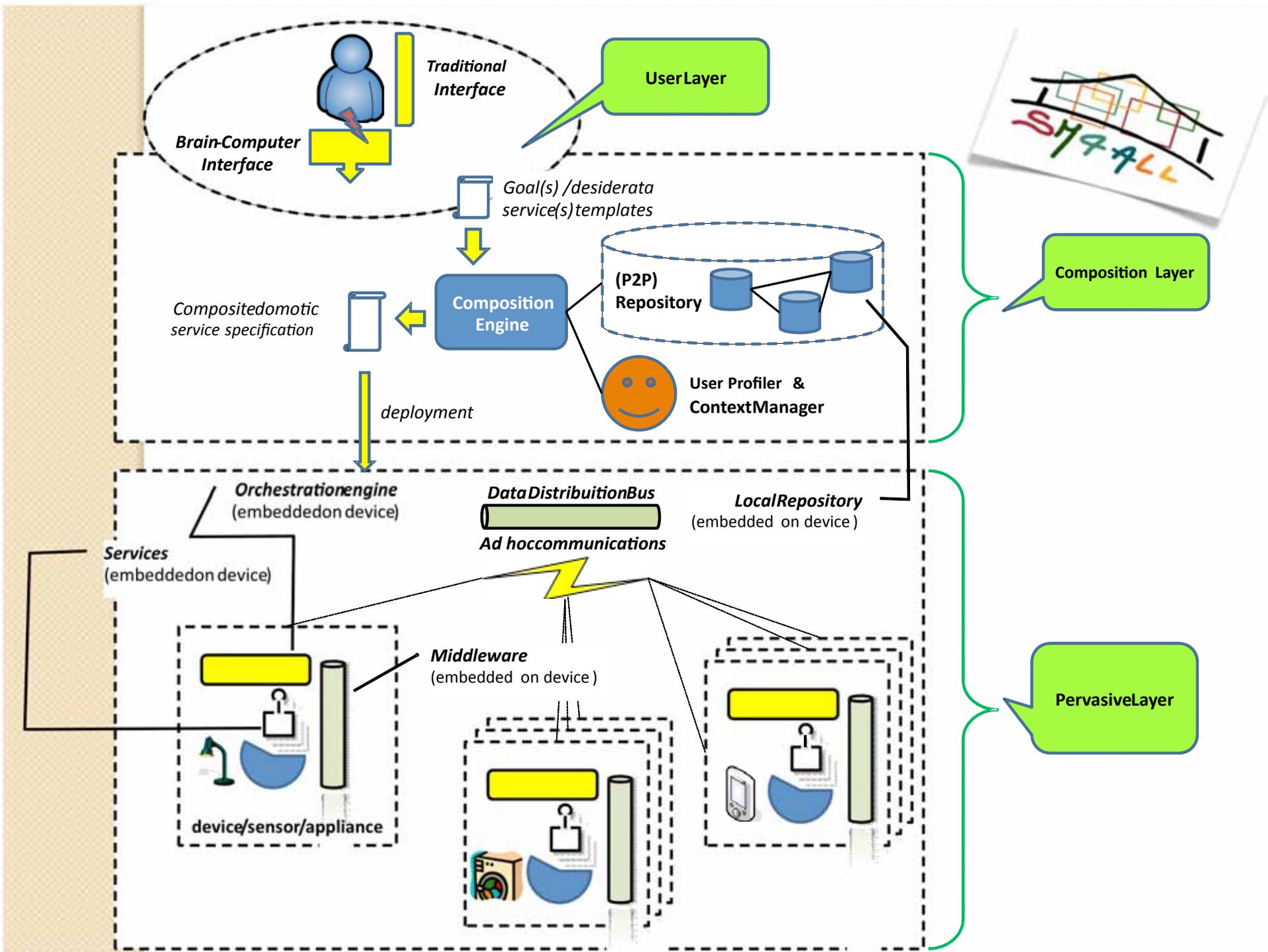


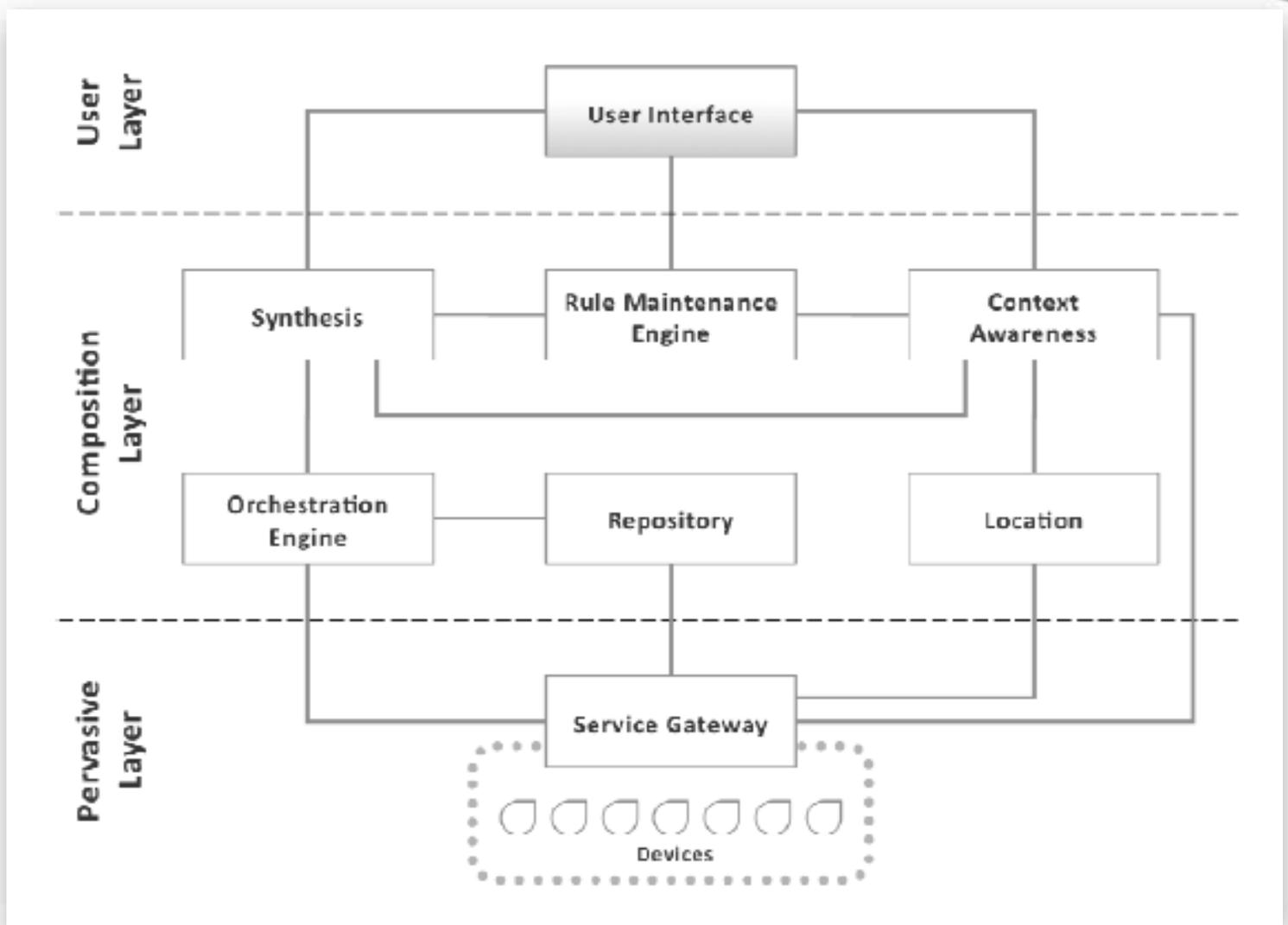
- Take care of elderly/disabled persons
- Entertainment
- Energy Saving (agreement with ITRI signed feb 2010)



USER CENTRIC APPROACH

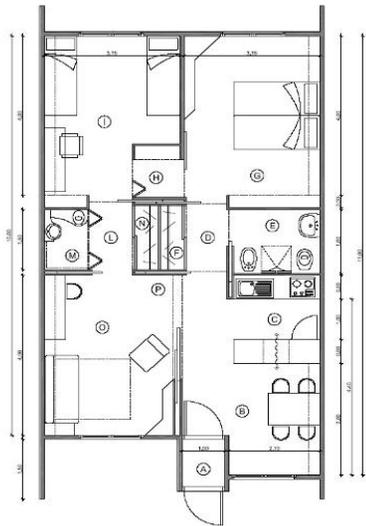






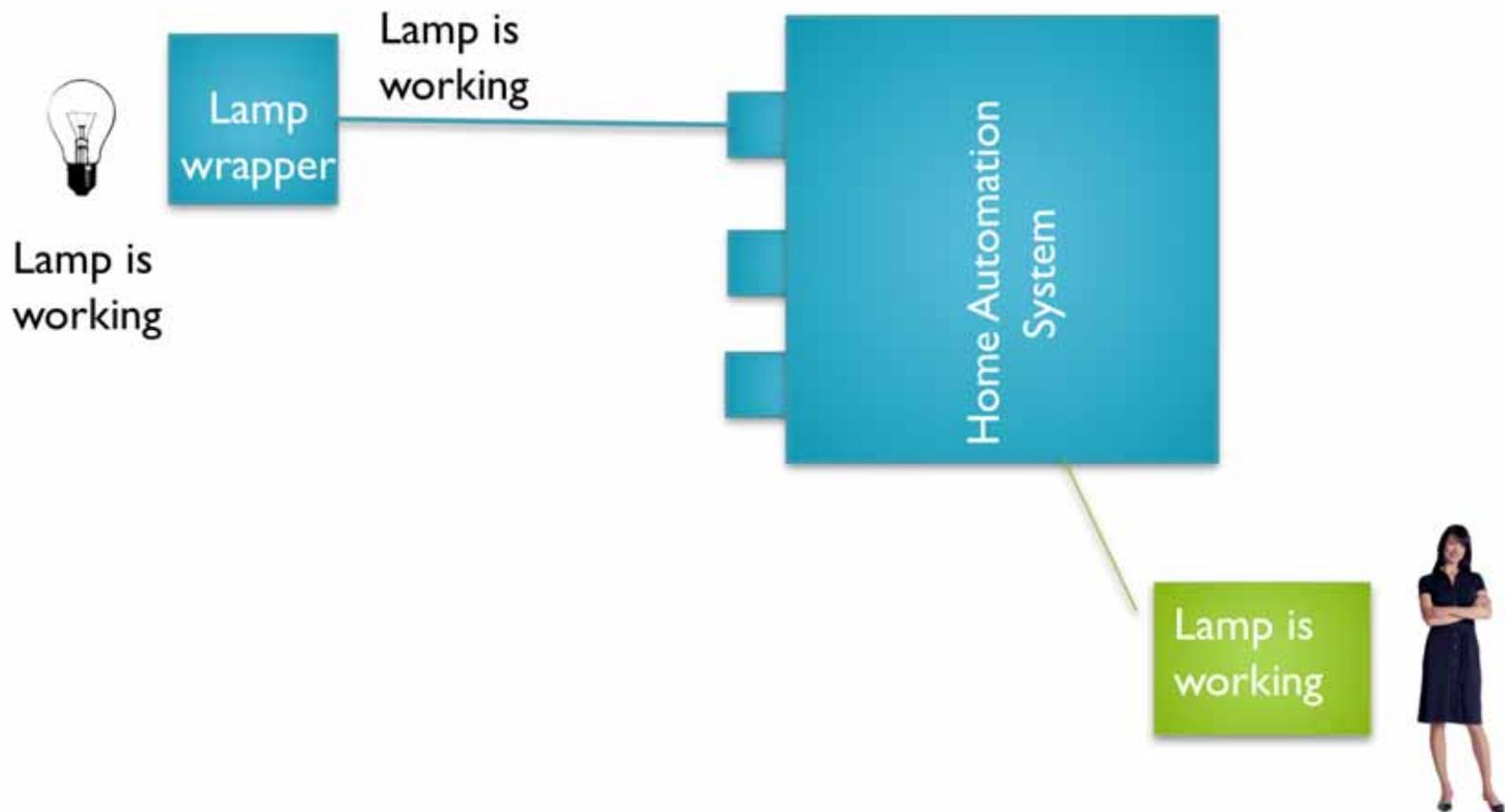
Real demonstrator(s)

- FSL is already equipped with a small accessible home, which will be equipped with the SM4All platform prototype

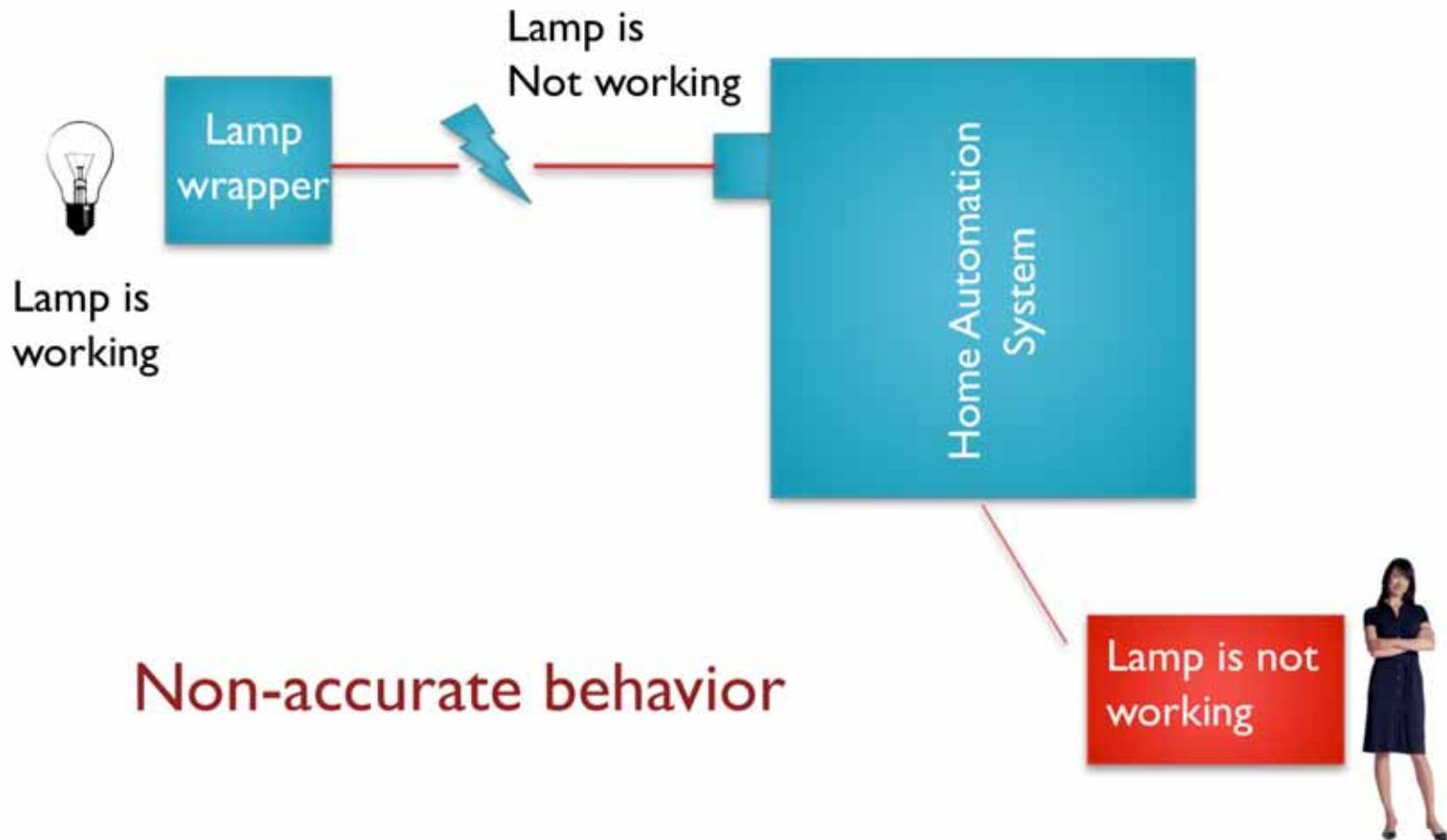


THFL will make available some clients of theirs, for deployment of the platform with a limited number of sensors in some houses in the Netherlands

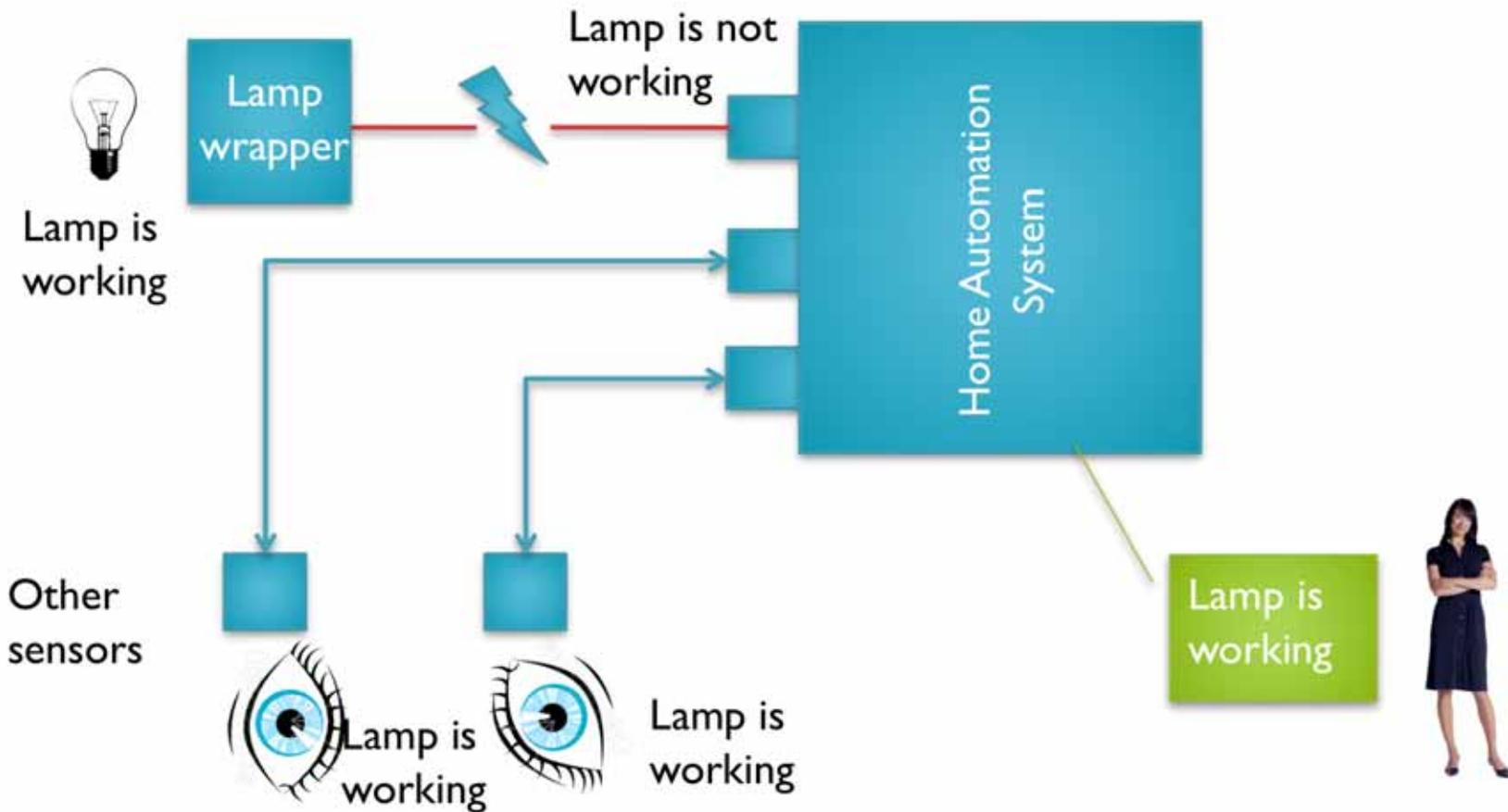
Is the lamp still working?



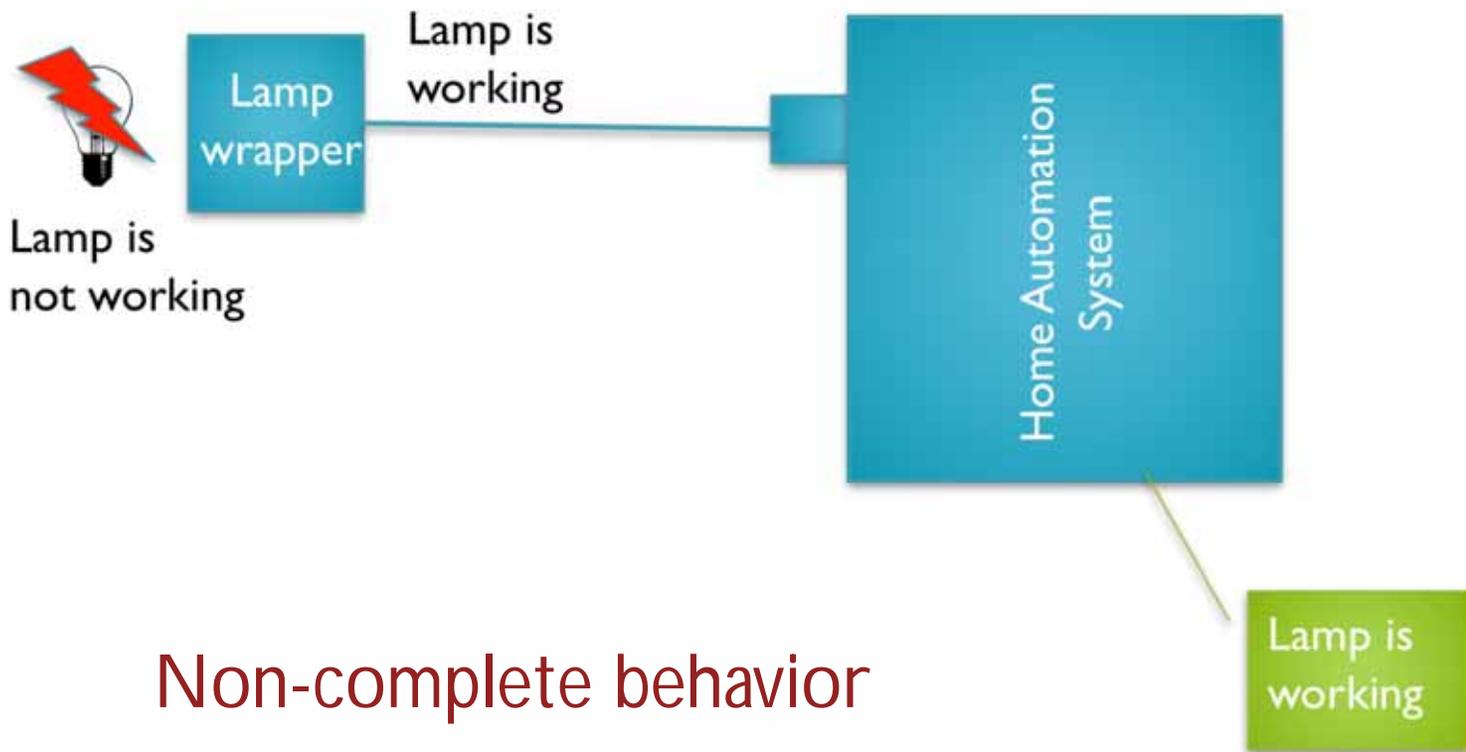
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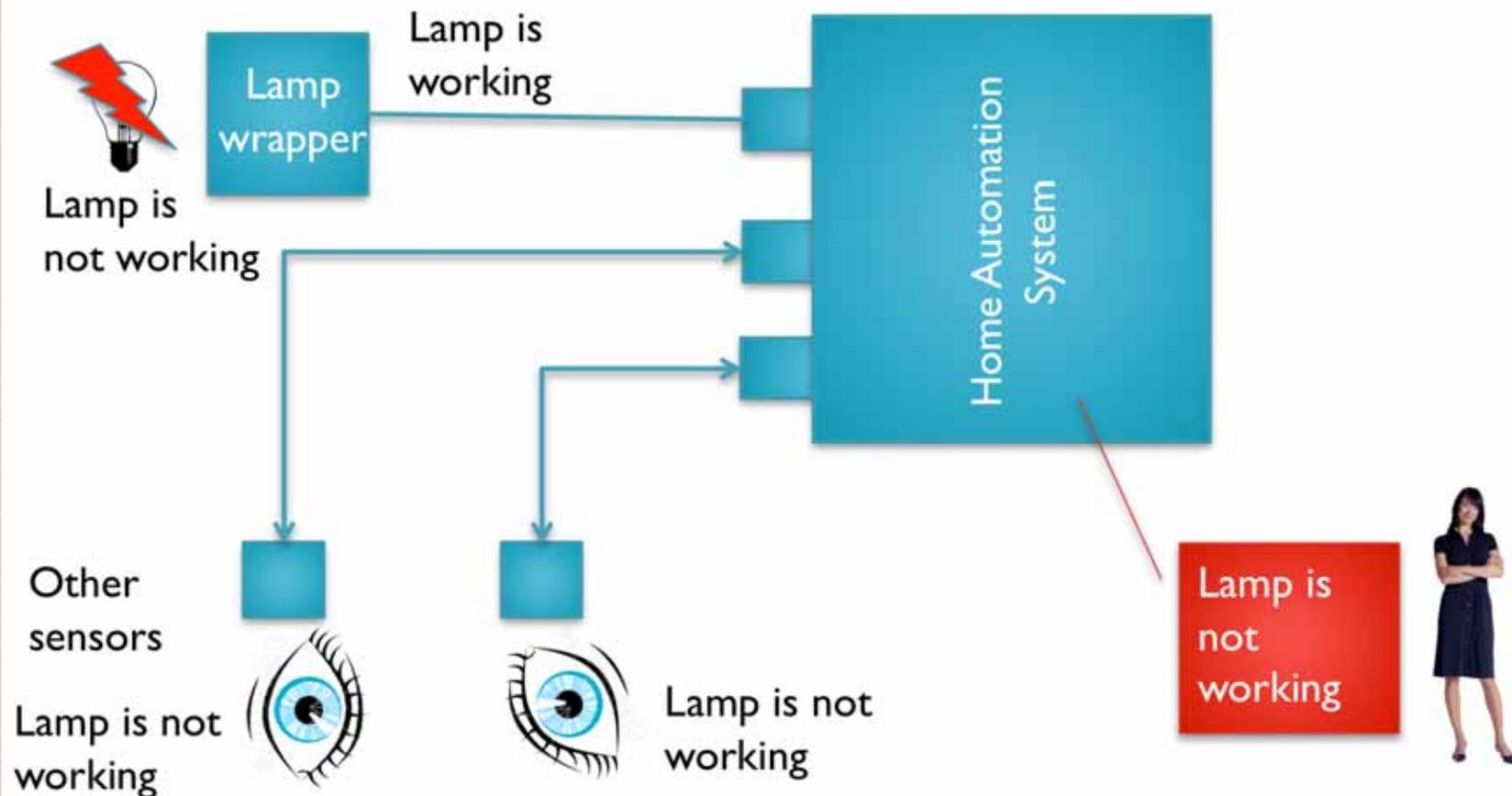
Is the lamp still working?



Non-complete behavior



Is the lamp still working?



Is the lamp still working?



- Completeness
 - No missed failure
- Accuracy
 - No false warning
- Timeliness
 - Warn in a "reasonable" time

Is the lamp still working?



Failure detected by
the physical layer



Look for
appropriate
sensors that
confirm the failures



Take a decision
raise (or not) the
warning

Event based processing
Reasoning with uncertainty
Multi Agent Planning under resource constraints
Ontologies
Service orchestration
Context awareness