Identifying People

A DOAS 2006 project

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Ambient Intelligence (AmbInt)

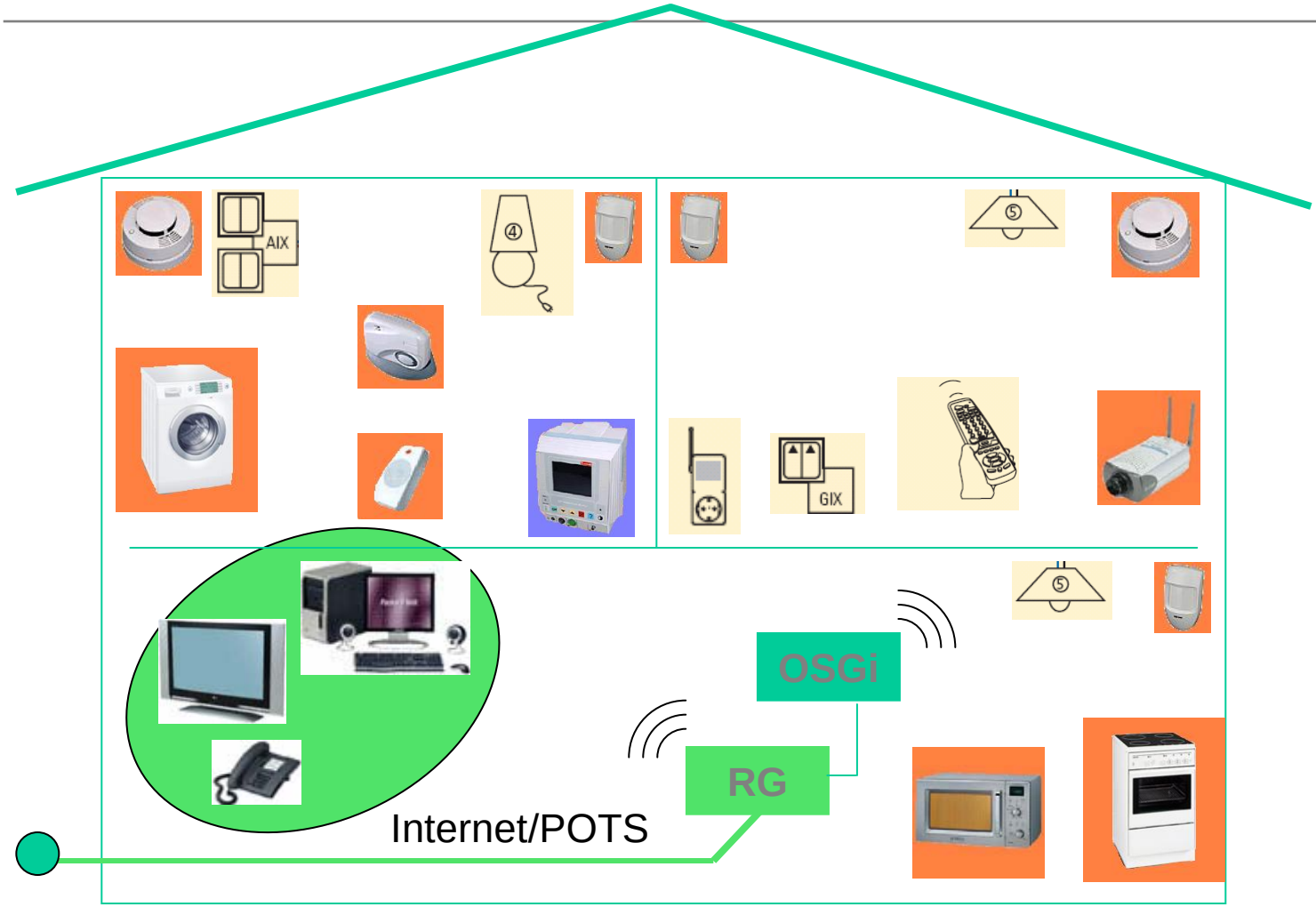
The art of creating intelligence in the environment.

AmbInt systems use smart devices to monitor and act upon the environment.

It is an emerging field.

AmbInt can be indoors or outdoors

Example



Identifying/recognizing persons (in homes)

Problem:

To identify persons, we need sensors that can detect and identify humans.

This is a problem because such sensor systems are typically unreliable while expensive. Hence currently not interesting for an AmbInt system.

Furthermore, advanced systems obscure the possibility of solving problems in a more elegant manner.

Of course, there is RFID, but you must carry it with you

Identification using prior knowledge

- Persons can be identified by behavioral patterns (e.g. watching certain T.V. programs, order of actions)
- Persons can be classified by simple characteristics (e.g. height, position in the house)
- Persons can be related to each other (e.g. if John is in the kitchen, the newly detected person cannot be John)

Project proposal

• Develop a system that can identify persons based on reasoning methods.

• It is suggested to use Bayesian networks as reasoning method about uncertainty and a database with stored rules and relationships.

Usage of the results

- The results could be used in our ongoing research on situation awareness (knowing what is going on in the world).

- The results could also be used by others who work with AmbInt intelligence as an example of how to extract information out of the world using available information and common sense (TNO, HvA).

Tasks for this project

1. Literature study
2. Define methods for identification of persons
3. Build a working system with a database and a reasoning methodology (programmers needed!).
4. Write report
5. Present results