

<http://www.cs.vu.nl/~eliens/media/note-digital-life.html>

## digital life

Life is becoming digital ...

digital life

Life is becoming digital for some time now, [Negroponte]. We are surrounding ourselves with gadgets and we are consuming immense amounts of information, that is increasingly being delivered to us via the Internet. We play games, and we still watch (too much) television.

It even invades our houses ...

domotica

Domotics is a contraction of the words domus (Latin for house) and robotics (automation). Domotics is the combination of technology and services for improved living in the areas of safety, comfort and technical management. It is therefore a complete system, not just a remote control.

alternative definition

Domotique or domotics is a contraction from the Latin word "domus" (= home, house) and telematics. In the following the term smart homes is used instead of domotics.

Despite the complementary definitions, houses, considered as systems, may become more intelligent ...

smart house

A house cannot be smart, although certain products and solutions can be". We rather talk about intelligence that can be achieved when products are connected together.

However, smart homes should primary be considered as a service, or a system of services, including entertainment!

service(s)

The various terms lead to confusion amongst the customers. Moreover, in the various countries a diversity of opinions exists concerning the concept of smart homes. Therefore, the following definition has been formulated: Smart home technology is the integration of technologies and services, applied to homes, flats, apartments, houses and small buildings with the purpose of automating them and obtaining and increase safety & security, comfort, communication, and technical management.

The question is how to control such a complex (intelligent) system, and to ensure that the integrity of the smart house and the safety of its inhabitants is not jeopardized.

**(virtual) domotica**

There is a range of interesting issues connected to the realization of the *domotica* vision, engineering issues, human-computer interaction issues, as well as research issues dealing with the deployment of intelligent, semi-autonomous systems.

As a research statement:

(virtual) domotica

To be able to control the complexity of smart houses, we need to simulate the behavior of such systems and their interaction with a user using virtual reality systems based on *intelligent multimedia* technology.

We call the application of VR technology to investigate domotica issues *virtual domotica*.

Naturally, virtual domotica is not meant to exclude other approaches to domotica, nor does it compensate for the need to realize actual domotica applications and subjecting these to rigorous user tests. However, it does provide a means to try out complex intelligent systems under a variety of user scenarios in a safe and reliable manner.

domestic servant

As (what may be considered) an example of a virtual domotica application, we have developed a *domestic servant* that takes commands and questions in natural language. The servant acts as an intelligent agent and learns from the instructions given by the user. The agent lives in a virtual house consisting of a number of rooms with a variety of objects, which it may move or manipulate.

The example sketched above does not include simulation of events on a timeline. To develop actual virtual domotica applications simulation facilities need to be included. Apart from testing complex scenarios, as the domestic servant, also partial domotica solutions, such as light and energy management facilities can be tested using VR technology as well.

**pragmatics** To bring the idea of *virtual domotica* to fruition, in such a way that the insights gained can also be applied in practice, we need to consider the following issues:

pragmatics

- identification of domotica solutions
- deployment of a platform for *virtual domotica* applications
- development of a framework for (multimedia-enhanced) domotica applications

For students these requirements implicate that they must obtain a basic working knowledge of desktop VR. In addition a (young) researcher is needed to develop the platform for (intelligent) virtual domotica applications. And finally, based on the insights gained by developing virtual domotica applications, research and development effort should be spent on developing a framework for multimedia-enhanced domotica applications that work for the range of computing gadgets that can be applied in smart houses.