



A smart place to live

DO YOU LIKE THE SOUND OF A house that calls the repairman and orders new parts when there is a fault with the washing machine? Or that automatically waters the garden when it gets too dry? It probably sounds like a fanciful dream for the next century, but in fact a house like this could be yours tomorrow.

For £2.2m you could own what is claimed to be the most intelligent house in the world. Located in a characterless street off the main ring-road around Brussels, Belgium, the House of the Future is filled with gadgets that save labour, time and energy, most of which are controlled by a central computer. The house even has a high-tech office, ISDN line and sophisticated Silicon Graphics computers.

The family house, which cost £6m to build, including sponsorship from 122 companies such as Microsoft and Siemens, is the brainchild of Belgian architect Frank Belien. He claims the house is smarter than other high-tech homes that have been built around the world. The key to its intelligence is a central computer that uses Microsoft Windows '97 software.

While most future homes have plenty of gadgets, not many have computers that monitor, control and link them, says Belien. He claims the House of the Future carries out this central control function to a far higher level than any other home.

The House of the Future is designed to pamper you. It makes sure you are neither too hot nor too cold, looks after the maintenance of electrical appliances, orders the shopping and even shows you how to rustle up a meal. Andy Cook visits Belgium to see tomorrow's home.

This claim is lent substance by Britain's latest high-tech home project. Integer 2000, a research project backed by Berkeley Homes and Northern Rock Building Society, was launched last month. It aims to provide a central control system that will connect different electronic appliances, allowing televisions to be used to control lighting and central heating systems, for example. However, the project is unlikely to start within the next year. Belgium's House of the Future opened last year.

The Belgian house system is as easy to use as an office computer. Hidden in a cupboard in the lounge, the central control computer is operated by clicking on desktop icons using a mouse-controlled cursor. From this computer station, lighting, climate, security and kitchen systems can be controlled.

One of the most impressive functions is climate control. The 300 m² House of the Future has large areas of glazing to maximise natural light levels in the house, so reducing lighting bills. But this can lead to overheating because of solar gain. So, as in the most sophisticated office buildings in Europe, heat sensors control heat generated by radiators, lower sun-blinds to cut solar gain, and open windows to provide ventilation. The ideal climatic conditions can be set up in the central computer and altered remotely by telephone via a modem.



Above: House of the Future I in Belgium has a luxurious pool and deck, as well as being the cleverest house in the world.

Left: Artist's impression of House of the Future II. Due to start next year, the house will be more intelligent than its predecessor.

Maintenance is also a key issue. As there is so much reliance on electronic appliances, these must be kept operational for as long as possible. So, the house aims to look after the maintenance of electronic devices itself. Many of them have self-diagnosis mechanisms that are monitored by the central computer. If, say, a washing machine registers a fault, the computer notifies the service provider and, in some cases, can order new parts.

For security, there is the standard burglar-alarm kit as well as sensors that check for the high-frequency sounds made by breaking glass. This means that, unlike infra-red systems that detect movement, the alarm is triggered before the burglar enters the house.

Closed-circuit television is also used to provide constant monitoring or recording. The CCTV at the House of the Future can take single-shot photos. When the visitor enters a sensor by the entrance to the front door, the CCTV takes a shot and the central computer stores it. Not only is it useful for catching burglars; you can also find out who visited while you were out.

The House of the Future brings sophistication to home shopping. It will generate a shopping list based on what you have thrown away. A barcode scanner is used to record discarded packaging. The central computer notes the item and adds

it on to next week's shopping list. Once the list is checked, it can be sent by modem to a superstore, which can deliver goods to your door. The computer can also store recipes and replay videos that show you how to follow them.

Not content with a recent £500 000 upgrade of the house, which saw the introduction of photochromic glass and the high-frequency sound detectors for the burglar alarms, Belien is already working on House of the Future II. Although reluctant to predict exactly what ideas will be included, Belien says sensors will be able to monitor nutrient levels in garden soil and recommend fertilisers to make up for any deficits.

He also predicts that the computer system will use "fuzzy logic" to learn from occupants' habits. For instance, it will monitor your TV viewing habits and remind you when your favourite programme is on.

Home-working will become more important, says Belien. So, he is looking for specially designed office furniture for the home, such as chairs that are suitable for working at a desk and sitting at a dining table.

If you want a house that is so smart it should be in MENSAs, and Belgium is too far away, do not despair. Belien is considering building House of the Future II in Britain. Work is due to start next autumn.

Future functions

Some of the features that will change your life in the House of the Future:

Toilet paper is obsolete. Like a bidet, the toilet has a cleansing water jet. Drying is provided by a hot-air blower.

Paint finishes are environment-friendly. Walls are painted with a solution of water and chalk, which gives a distressed look.

Food preparation is made easier by an adjustable-height kitchen table. The powered table can be raised or lowered to suit the height of the cook.

A solar concentrating mirror heats water for the house.

Photovoltaics provide emergency electricity.

Light and sound levels can be adjusted and preset at the central computer. Low lights and soft music are yours at the touch of a button.

Photochromic glass becomes darker as the sun becomes brighter. This provides automatic control of solar heat gain.

Desktop projectors are used to display art and clocks on the wall.

Self-rocking beds send you to sleep.