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Smart homes connect all the devices and appliances in your home so they can communicate with each other and with you. Anything in your home using electricity can be put on the home network and will be at your command whether youâ€™re at home or out. You can give commands by voice, remote control or computer. Most applications will relate to lighting, home security, home theatre and entertainment and energy monitoring, such as smart meters. The overall aim is to reduce energy consumption.

All the appliances and devices are receivers, and the means of controlling the system, such as remote controls or keypads, are transmitters. Instead of going through the power lines, some systems use radio waves to communicate, which is also how WiFi and cell phone signals operate. However, home automation networks donâ€™t need all the juice of a WiFi network because automation commands are short and low power messages.

The technologies use mesh networks, meaning thereâ€™s more than one way for the message to get to its destination. Some technologies use Source Routing Algorithm to determine the fastest route for messages. Each device is embedded with a code, and when the device is plugged into the system, the network controller recognizes the code, determines its location and adds it to the network. When a command comes through, the controller uses the algorithm to determine how the message should be sent.

Zigbee however illustrates the mesh networking concept because messages from the transmitter zigzag like bees, looking for the best path to the receiver. Their platform is based on the wireless standard set by the Institute for Electrical and Electronics Engineers (IEEE) for wireless personal networks.

Smart homes aim to make life more efficient and convenient, whilst reducing energy consumption and costs.

Energy Consumption

In the UK, low-energy "green" buildings are extremely uncommon, according to John Alker, head of policy at the UK Green Building Council, but this is set to change. The new government has stuck to targets mandating that all new residential homes must be carbon neutral by 2016, with commercial and public buildings to follow three years later.

Many firms are starting to develop products that will be used in smart homes. UK firm, Green Structures is developing a passive heat recovery system using heat pipes and a thermal accumulator. It stores the cool or hot air during to release during the day, saving the cost of air conditioning in the summer and heating during the winter.

In order for all of these products to be able to work, power grids need to be set up to become more efficient and to be able to deal with this new technology. Current tests to look at the practicalities of smart grids have been going on in the US. The pilot involves introducing smart meters in homes and showing how smart grid technologies will provide greater energy control, improve electricity delivery and cut energy consumption â€“ this hopes to delay the need to build more power plants.

These smart meters provide two-way information transfer between the power company and the person at home using their radiator.

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A HREFhttp://www.wave2m.com/about-us/our-goals-and-values/>Wireless communication standards/A> are being utilised more and more in business and will be coming to our homes in just a few years, in order for us to build our smart homes and networks.

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