Unit 3C1 Meeting Special Needs

For this piece of work I will be looking at a particular person who has a special need and the technology they use to help them. I am going to write about Stephen Hawking, a nuclear physicist suffering from Motor Neurone Disease.

Motor Neurone Disease is an incurable, degenerative disease. The Motor Neurones in your brain send instructions to the body in the form of electric impulses. Degeneration of Motor Neurone leads to weakness and wasting away of the muscles. Senses and intellect are rarely affected, so it's like the person is trapped in their own body.

Steven Hawking was diagnosed with this disease in his early 20s, and now can only do minor movements like blink and move his index finger. To get through home, social, and work life, he uses specially adapted technology to help him do and access things he can't.

Social Life

To communicate Steven needs specially adapted technology, as he can't speak without help.

- To talk, he uses a speech synthesizer. To do this, he selects words and builds them up into a sentence, then sends them to the speech synthesizer. To build up the sentences he uses another program, that scrolls words and phrases along the screen, then he uses his index finger to select the words he wants.

Evaluation on Social Life

If Steven Hawking didn't have this technology, he wouldn't be able to communicate, and would find his social life very difficult, as no one would be able to understand what h is trying to say. The advantages of this technology are that it enables him to talk even though it gives him a unusual unrealistic voice. The disadvantages of this technology are that he has to select the words and this can take time, so he can't give instant reactions.
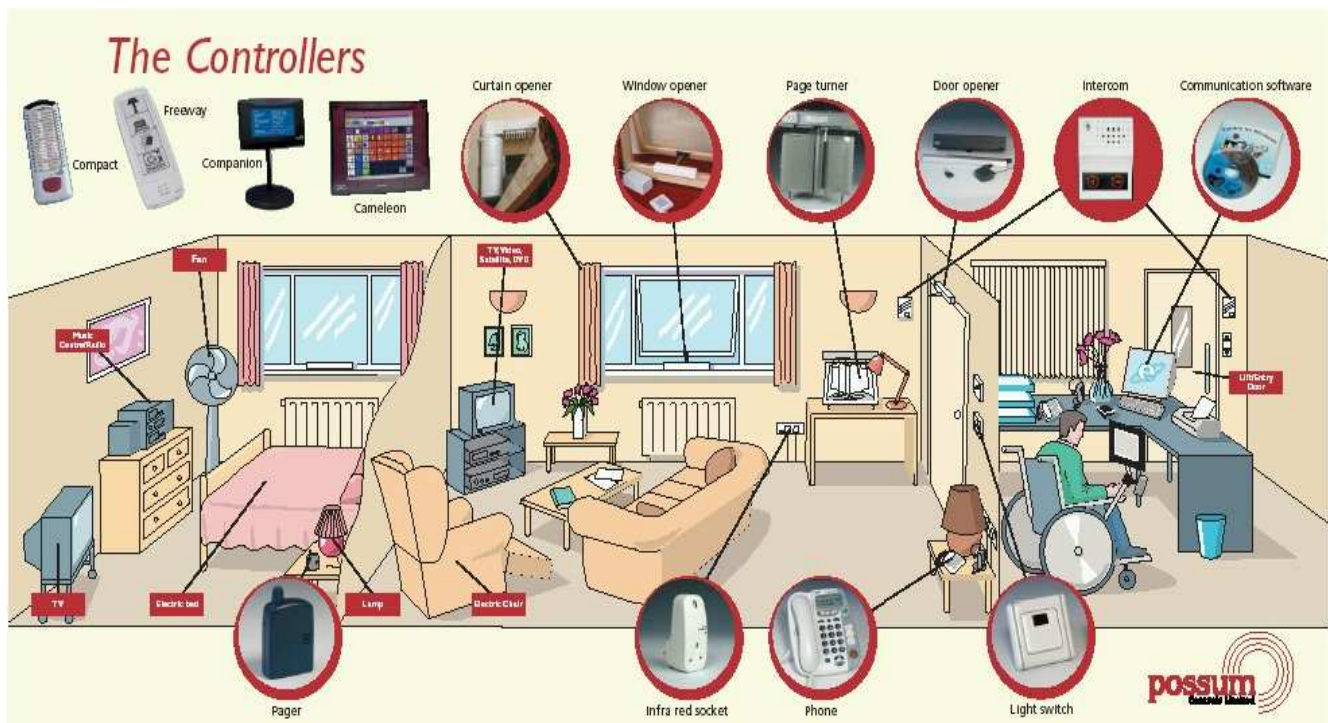
Home Life

At home Steven uses various pieces of technology to do the simple things we take for granted.

- To control electronics around the house he has a universally programmable infra-red remote control attached to the computer on his wheelchair that enables him to control all things like television and music centre.
- To open doors and operate lights throughout he has a radio control device that senses when he gets near the door and it opens and turns the light on and off using sensors.
- To use the telephone, he uses either his laptop mobile phone card or connects his wheel chair directly to a mobile phone socket. He does this by sending digital commands from his computer making the phone system to dial a number, answer the phone or hang up at the end of a call. He talks via his voice synthesizer.

Evaluation on Home Life

The technology is useful at home because it gives him more independence and enables him to do things he usually wouldn't be able to do. The controller makes it more convenient, as it has a wide range of technologies it affects so it's more mobile, and he can move round more. If it was a big bulky thing, or needed loads of wires connecting everything he wouldn't really have much freedom, so its an advantage that they are all wireless from the remote. The disadvantage is that because they are technologies they will need maintenance and could malfunction, which could be very dangerous since Steven is quite dependant on them.

The Controllers

Work Life

Steven Hawking has a variety of jobs. He is a nuclear physicist, he writes books and he gives lectures.

- To give lectures he needs to use a voice synthesizer, which is mounted on his computer on his wheelchair. This gives him a voice, and enables him to give his lectures. He can pre select what he wants to give his lecture about, so he can just choose the subjects he wants to talk about. He can also use a projector which is controlled by his computer which allows him to give presentations with ease.
- To write books he uses a program called Equalizer™. He selects the words and phrases until he builds up a sentence, and then saves them to a disk. He writes out equations in words, and then the computer converts them into symbols. He can control the mouse with the switch through skilfully selected process from a small box shown on the desktop. He can also write text using similar menu's to those in Equalizer, which makes it more convenient for him.
- The newly built Centre for Mathematical Sciences will enable Steven to get around the building almost unassisted as it will be equipped with the same technologies that are fitted in his home.

Evaluation on Work Life

These technologies benefit Steven a lot in his work life because they enable him to share his intellect with the world. The advantages of these technologies are that they make his work life more convenient for him as they make him less dependant, and he can share more. The disadvantages of these technologies are that Steven is totally dependant on them, so if there is a problem there could be dire consequences, like if his computer gets infected with a virus, and he hasn't had a chance to save his work to a disk it could all be wiped and maybe weeks of research and writing could be wiped.

Conclusion

Although Steven Hawking is severely disabled he manages to get through social, work, and home life quite dependently with his computer. This is good because without these technologies he would truly be trapped in his body. The computer is his backbone, and without that he wouldn't really be able to control any of the technologies. This is a huge disadvantage because if something was to happen to it then it would prove very difficult for Steven.