Ms MacLaren
I.C.T Coursework

Unit 3c Special Needs

In this part of the coursework I am going to layout all the needs of a person who has mobility impairment. His name is Scott and he is a 19-year-old engineering student with muscular dystrophy. Scott needs special technologies in order to keep his life running as normal as possible.

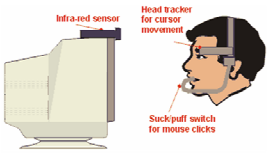
Some technologies that Scott may need are:

- Tracker Ball
- Head Tracker
- Screen Keyboard
- Brain Switch
- Voice Recognition

Tracker Ball:

A tracker ball is an input device where a finger is used to rotate a ball. This moves a pointer to the screen. A tracker ball is very useful to Scott. This helps him to move the pointer around easily. The tracker ball is a replacement for a normal mouse. Scott has troubles gripping the mouse because of his deficiency. It is easier for him to use a tracker ball because this allows him to gently move the ball just with one finger. This is easier because his hands can shake quite a lot and he cannot control this so using just one finger can make life so much easier and its not as frustrating because he don't need to use up all his energy. The tracker ball also doesn't take up as much space as a normal mouse, because a normal mouse you need sufficient space to be able to move it around freely while as the tracker ball stays in one place and all that is needed is to move the ball in the middle around with your hand. A tracker ball lets Scott run an independent life without needing the help of others. A tracker ball is also needed to use other technologies such as On Screen Keyboard.

Head tracker:



A tracker is used with head movements, Scott can position the cursor on screen and left and right mouse clicks can be made with a suck-puff switch. To allow Scott to move around freely, communication between the head tracker and the computer is normally carried out via a wire-less infra-red transmitter and receiver. This helps Scott immensely because if his hand becomes tired because it shakes a lot and he tries very hard to keep it stable and control the tracker ball at the same time. When this occurs he can resort to the head tracker and this makes it easier as he only needs to use his head. The head tracker is also used for other technologies like the On Screen Keyboard. This technology does have its disadvantages, one of them is that he has to keep a very stable neck and he has to keep his head up right in order to be able to reach the point he wants. There are sometimes very small buttons which Scott can sometimes miss and has to try various times to be able to click on a button of some sort. This can become quite stressing after a while so the head tracker needs a lot of practice and needs getting use to.

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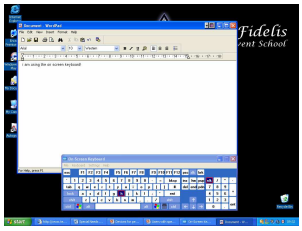
On Screen Keyboard:



An on screen keyboard is easier for Scott to use because of his deficiency and his hands shake a lot he cannot control the keys properly because his hand is not stable he cannot tap the right keys and can sometimes become very frustrating. So using the onscreen keyboard he can easily access the letters by clicking on them with his tracker ball or head tracker, which he finds easier to use. Without these two technologies he could not use the on screen keyboard. He can also use all the numbers and punctuation that is needed. This can also be easier for him in terms of his head movement. He does not need to be lowering his head to look at the keyboard and then looking up again at the screen, with the On Screen Keyboard, he can keep a constant look at the screen and this doesn't need head movement. Of course, the on screen keyboard can become a bit tiring and a bit useless, because Scott has to find every letter and click on it and this can take quite a while.

Speech Recognition:

Voice or speech recognition is the ability of a machine or program to receive and interpret dictation. This can be so much easier for Scott, because he has trouble using a normal keyboard because of his deficiency he uses an on screen keyboard, but if Scott wants to write something long or something complex that he can't really use the on screen keyboard because he will get tired and it can get a bit annoying, because he has to type letter by letter. Speech recognition makes it easier because all he needs to do is dictate to the computer what he wants the computer to write down. Of course, he has to make his speech loud and clear in order for the computer to understand what he's saying. Obviously a lot of the technologies have their disadvantages. All voice-recognition systems or programs make errors. Screaming children, barking dogs, and loud external conversations can produce false input. Much of this can be avoided only by using the system in a quiet room. There is also a problem with words that sound alike but are spelled differently and have different meanings -- for example, "hear" and "here." This technology could take quite some long to get use to, as the computer needs to get use to Scott's voice.

Brain Switch:

A brain switch allows a severely disabled person to control on/off devices, for example, light switches, a heating switch or other environmental controls.
The switch is operated by measuring the 'biosignals' through a contact on the forehead. Scott can be taught to operate the switch by 'state of mind' - a calm, quiet state leaves the switch off and an active, excited state switches it on. Although Scott is not severely damaged, this can make his life easier for him. He might not need it urgently or it may not be a "must have" in his life but this can make his life easier. If he has small light switches or the electrical alarm for his oven is too small for him to be able to get it turned off quickly then the switch can help him turn this off. Small things like this can really change his life to make it easier because these small things are what he does regularly and this way he knows that he can count on the brain switch to help him out. But I know there are people who need it more than Scott would but it can still be a technology to help Scott with his daily life.

In conclusion I think that most of these technologies do make Scott's life much easier to handle with his deficiency. Obviously not all of these technologies are 100% effective and every technology has their disadvantages as I have listed above but there are more advantages to the technologies then there are disadvantages and I think that as long as it helps Scotts even a little bit, it's very successful because it's helping the difficulties of someone's life so much easier.