Assistive technology: a boon to disabled

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Abstract

Assistive technologies are frequently forwarded to schools, parents and educators as aids to help the disabled students. These innovative technologies led towards a compensatory value, to reform learning problems and enable them to achieve personal independence. These technologies extend from easy spellcheckers to more difficult speech identified systems and educational software. The research oriented studies on Assistive Technology have assessed their effectiveness– mostly in terms of their reformative and aided functions. It is globally an approximate figure that there are more than 150 million children with disabilities under the age of 18. Individuals with disabilities are especially at chance of discrimination and abuse. Girls and boys with disabilities have lesser rates of completing the primary school education than those without disabilities and in many instances; dearth of possibility to assistive technology is a causative factor. Access to assistive technology is a pre-requisite for gaining equal opportunities, enjoying human rights and living in dignity. Assistive technology improves the life standard of both children and their families. This article discloses the devices which are used by the people with visual and hearing disabilities.

Key words: Assistive technology, Disability, remediate, devices

Introduction

Modern India has a strong vision on science and technology, owing to the fact that it is a key element for economic growth. India is one of the top most countries in the world in the area of scientific research and development. Further, India is the second largest country in the world. As per the latest 2011 (2016 updated) census – total population of India is 121 Crores, in which 2.68 Crores are disabled. The disabled male population as per the statistics accounts to 56 percent (1.5 Cr) and females 44 per cent (1.18 Cr). In one way or the other, many of the people were suffering from disabilities, which arises since birth or through accidents and natural disasters.

The individuals with disabilities perform their functions which otherwise or impossible through Assistive Technology. They involve movable devices like walkers, wheelchairs, hardware, software, and peripherals that help people with disabilities in accessing computers or other information technologies. For example, people with narrow hand may function by using a keyboard with large keys or a special mouse to run a computer.

For the blind people, a software is developed which reads text on the screen in a computer-generated voice, people having the low vision uses the enlarged screen to read the content. Text telephone is used by the deaf people and for speech impairment individuals, which speaks out loud as they enter text via a keyboard. The

researcher in this paper tried to assess the functioning of these Assistive Technologies that improve the quality of life of the disabled children and develops confidence within them and their families.

Devices for the visually disabled

Refreshable braille displays

This gives a tactile output of the information displayed on the computer screen. A Braille cell is made of a series of dots. The pattern of these dots and various combination of the cells are used in the place of letters. The user reads the Braille letter with his/her fingers and then after a line is read, can refresh the display to read the next line.

Screen enlargers or screen magnifiers

Within the computer, the magnifiers work like a magnifying glass by expanding a part of the screen that enhances legibility and make it simple to view items on the computer. There are certain screen enlargers which allow an individual to zoom either way on a specific area of the screen.

Screen readers

These are utilized to verbalize or "talk", everything on the screen including content, illustrations, control buttons and menus in to an automated voice that is audible to any one. Generally a screen reader changes a realistic User Interface with graphics into a sound interface. Screen readers are basic for visually impaired persons.

Speech recognition or voice recognition programs

Without a mouse or keyboard, these programs allow people to give commands and enter data using their voices.   Voice recognition systems use an micro phone attached to the computer, which can be used to create text documents such as letters or email messages, browse the internet and navigate among application and menus by voice.

Text - to – speech (tts) or speech synthesisers

These gets data setting off to the screen as letters, numbers, accentuation marks and speak it out in a computerized voice. Speech synthesizers permit PC users who are visually impaired and who have learning challenges to hear what they are composing and furthermore give a spoke voice to people who can't impart orally, yet can convey their contemplations through composing.

Talking and large print word processors

These are computer programs that utilizes speech synthesizers to give sound-related input of what is composed. Substantial print word processor enables the user to see everything in huge content without screen enlargement.

Tracker

Tracker is a PC input device that replaces a mouse for individuals with almost no hand movement. Essentially it works simply like a mouse. Whatever can be done with a hand mouse is made possible by utilizing Tracker.

Devices for the hearing disabled

Vision tracker

Eye Tracking Technology empowers people who are extremely incapacitated to control their computers without using hands through their eye developments. The Eye-Tools bar enables clients to perform mouse capacities including left and right snap, double tap, drag, and zoom. Users can impart using speech programming, type, surf the web, send email, control their surroundings, play amusements etc;

Sip-and-puff

sip 'n' puff is assistive innovation used to send signs to a gadget utilizing air stress by "tasting" (breathing in) or "puffing" (breathing out) on a straw, pipe or "wand." It is principally utilized by individuals who don't have the utilization of their hands. It is regularly used to control a mechanized wheelchair by quadriplegics with extremely high damage to their spinal line or individuals with nervous disability.

Touch screens

Permit the immediate activation of a computer or mobile by touching the screen, making it simple to choose a alternative directly as opposed through the mouse or key board. Touch screens are either incorporated with the computer screen or can be also included in the computer monitor.

Trackballs

A trackball is a pointing gadget comprising of a ball held by an attachment containing sensors to recognize the rotation of the ball around two axes—like a upside-down mouse with an uncovered distending ball.[1] The client rolls the ball to the position on-screen pointer, utilizing their thumb, fingers, or normally the palm of the hand while utilizing the fingertips to press the mouse buttons.

Predictor keyboards

These are otherwise called Keyboard filters which are utilized for composing helps, for example, word expectation utilities and extra spelling checkers that will diminish the number of the key strokes. It empowers speedy access to the letters and can maintain a strategic distance from the incidentally choosing keys that we don't need.

Light signal alerts

Screen of a computer sounds and alarms the PC users with the light flags. At the point when an email warning or any cautions is been advised by the PC, a light flag will be given by the PC until the notice will been seen by user. This will be progressively gainful for the general population with portable hearing assistant.

Conclusion

Assistive technology is a unique tool to expand independence and increase participation. It assists individual children become flexible, communicate more effeciently, visualise and hear better, and involve fully in learning activities. Further, assistive technology helps children to view and enjoy their rights; perform the tasks they value and reduces disparities between children with and without disabilities. It enables the means of approaching to and participating in educational, social and recreational opportunities. It enhances strongly the physical and mental function and increased self-esteem; and limits the costs for educational services and individual supports. The assistive technology is being linked up with health, mobility and education. By improving access to education and increasing achievement in school, assistive technology can have a positive socioeconomic effect on the lives of children with disabilities. More often the elderly people who were living

independently or who can't avail help from their family members can use these types of devices which help them to operate computer and electronic devices without others help. By improving these type of devices and developing the technologies in this field helps the disabled people in competing with the others in their interested field and aspects.

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