ICT for Disability

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One tenth of the world population are disabled in one form or another. Like

- Visual
- Auditory
- Physically
- Speech
- Cognitive

It is low in developed countries and high in the developing countries.
Overview

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- Improving access with assistive technology. For some disability people, it is hard to use a standard keyboard, monitor or mouse without some adjustment being made.
Visual impairment

- Very few visually impaired people are totally blind. Simple adjustments to the system’s accessibility options
  - Changing size of text.
  - Background colours.

- Total Blind
  It is needed to enable them to use:
  - Standard keyboard.
  - Alternative form of input—Braille software outputs to a retractable display, so that the Web site can be read by touch.
  - Software that will convert onscreen text to speech.
Each Braille character is made up of 6 dot positions, arranged in a vertical rectangle of 2 columns of 3 dots each. The dots are raised in one of the 64 possible combinations and each combination represents a different letter or sound.
Visual impairment

Optical Character Recognition Systems: Scan printed text and then speak it back.
Global Positioning System

GPS is a satellite-based radio navigation system that allows anyone anywhere on the planet to determine their 3D position with great accuracy and precision.

You are on Wood Road. Turn left for the bus station.
Visual impairment

- Ultrasonic distance measurement
- Target distance indication by sound
  - **Sonic Pathfinder**: Uses ultrasonic beams to detect nearby objects.
  - **Walkmate**: It detects objects and provides output to the user by a beeping sound.
  - **GuideCane**: Ultrasonic sensor-based obstacle avoidance
  - **NavBelt**: It consists of a belt with a small computer, ultrasonic and other sensors.
“I use the computer to type words and stories about myself and I write about my little sister. The computer talks to me” says Piesha.
Hearing Impairment.

- Visual notification is an alternative feature of some operating systems that allows deaf or hard of hearing users to receive a visual alert of a warning or error message that might otherwise be issued by sound.
- Telephones are being developed that have screens showing faces.
- The telephone converts the sounds into clear lip movements. It gives visual support of being able to lip read while they listen.
Cognitive disability aids

- Tasks that seem simple to most people, such as making the bed or brushing teeth, can easily be forgotten.
- Watches and telephones can be programmed to vibrate and show a message when a reminder is due.
- The user has to respond to show they have read the message.
Mouse-free computing

People who find it difficult to use a traditional mouse have many alternatives:

- Camera attached to the screen can track head or eye movements, and use them to move the cursor
- Mice can be controlled by the feet.
- Trackballs are like upside-down mice. They can be easier for many disabled people to use.
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- Maintenance or replacement of equipment.
Summary

- Technology can help people with disabilities live independent lives.
- Assistive devices must be more affordable and accessible.
- Information on assistive devices must be more available.
Thank you!