

ICT for Disability

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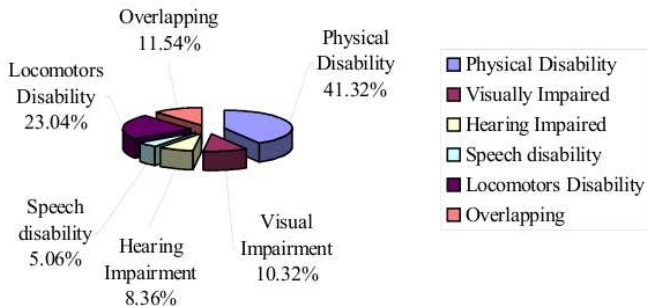


One tenth of the world population are disabled in one form or another
Like

- Visual
- Auditory
- Physicaly
- Speech
- Cognitive

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





Source: SARVEKSHANA, 36th & 47th rounds, *National Sample Survey Organization, Department Of Statistics, Ministry of Planning & Program Implementation, Government of India.*



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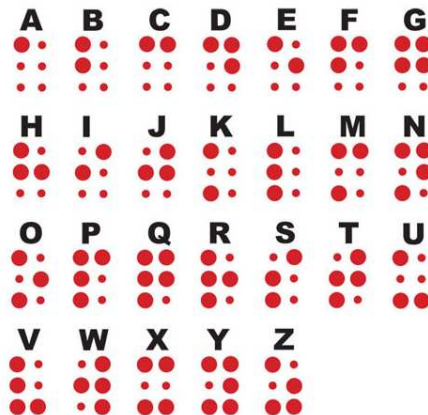
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- Problems are not due to the limitations of this technology. It is because the new systems and products have not been designed with the disabled and elderly in mind.
- Improving access with assistive technology.
For some disability people. it is hard 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.





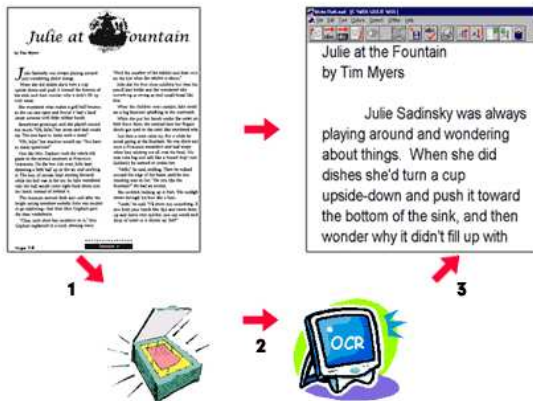
Each **Braille character** is made up of 6 dot positions, arranged in a vertical rectangle of 2 columns of 3 dots each.

The dots are raised in one of the 64 possible combinations and each combination represents a different letter or sound.



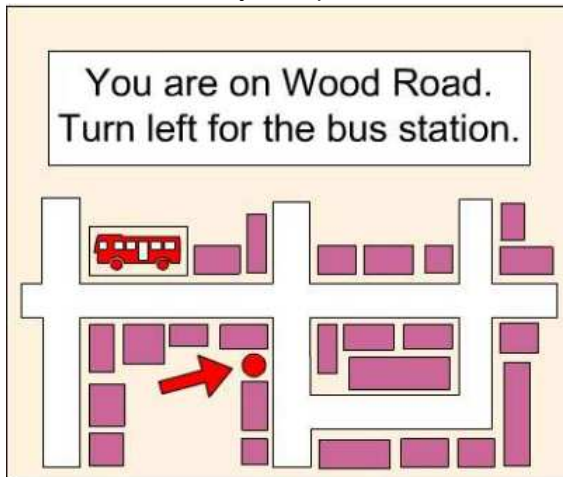
Visual impairment

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



Global Positioning System

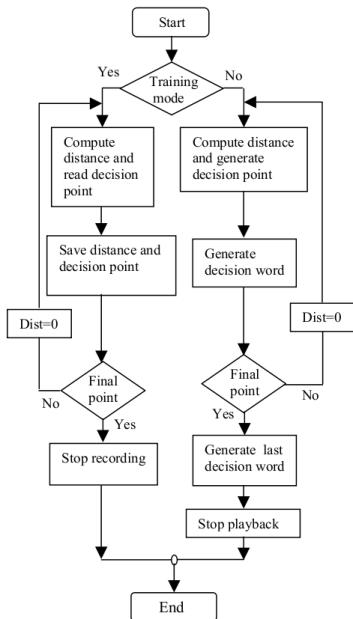
GPS is a satellite-based radio navigation system that allows anyone anywhere on the planet to determine their 3D position with great accuracy and precision.



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 consist 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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- Older people hesitant to use new technology.
- Many devices appear bulky or cumbersome.
- 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!

