

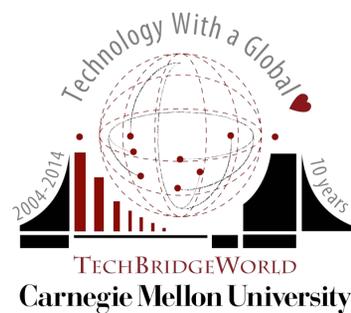
“We believe that every person with vision loss and hearing loss can be taught to use their other senses and the vision that remains to live independently and with confidence. We believe that every blind person can learn adaptive techniques and develop new skills so they may live independently.”



BVRSP is a private, nonprofit, United Way agency that believes in independence through rehabilitation. For over 100 years, BVRSP of Pittsburgh has worked with people who are blind, deafblind or vision impaired to become independent.

Did you know?

- Many of the BVRSP instructors are blind or vision impaired themselves.
- BVRSP programs include: Personal Adjustment to Blindness Training; Vocation and Employment Services; Low Vision Services; State-of-the-Art Computer Access Technology Center; Summer Youth Programs; Services for Seniors; Preschool Vision Screening; In-Home Instruction; Community Services; Day Programs for People with Disabilities.
- BVRSP also offers vocational and employment services, a low vision rehabilitation program, and employment.



TechBridgeWorld started collaborating with BVRSP in 2008 to explore projects related to navigation and education for the visually impaired. Researchers have since conducted needs assessment and user testing for navigation technology tools with BVRSP's staff and contacts.

www.bvrspittsburgh.org

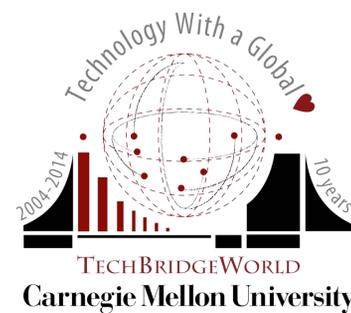
“WPSBC’s mission is to be a leading educational facility and outreach provider. WPSBC offers a full range of exceptional individualized special education services fostering maximum independence for students with visual impairment.”



WPSBC is an educational facility committed to teaching students who are visually impaired with severe concomitant disabilities. WPSBC also provides early intervention and outreach services to visually impaired students, with or without additional challenges, throughout western Pennsylvania.

Did you know?

- The majority of WPSBC’s students also have cognitive and ambulatory challenges and the school’s facility and programming are tailored for boys and girls who require distinct educational and supportive services.
- WPSBC approximately has 175 enrolled students annually from 242 school districts within western Pennsylvania. Students may enroll at age two and they can continue until 21.
- WPSBC staff focus on helping students use their “residual” vision to the best of their ability. The curriculum emphasizes the acquisition of life skills.



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www.wpsbc.org

These are some of the clues sighted people use to navigate...



Sighted people can rely on signs and maps to orient themselves and obtain information about potential danger in their environment. Imagine if you could not see that the path in front of you was icy, or if you couldn't see where to turn in a train station...



Corners of rooms are helpful landmarks as well as windows and other features of the building itself

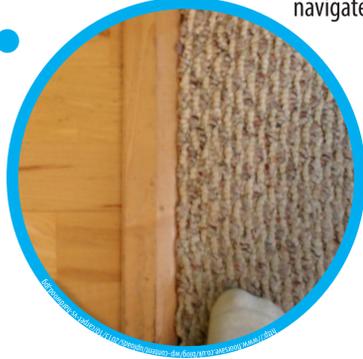


Intersections of hallways are also useful landmarks for navigation



These are some of the clues blind and visually impaired people use to navigate...

The edges of carpet and other types of flooring can often help visually impaired people using a white cane navigate indoors



Olfactory clues like the smell of coffee or other foods can alert visually impaired navigators of passing a coffee shop or restaurant



A change in wall texture or a drinking fountain can be a very useful landmark when trailing the wall with a hand for guidance in indoor navigation



Braille signs on the walls are very helpful, however buildings often do not have all of their signs translated to braille



Orientation and Mobility

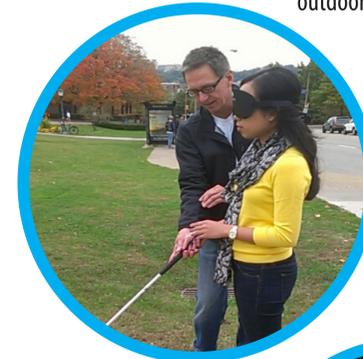
Orientation and Mobility (O&M) specialists train visually impaired people to navigate independently.



Less complex skills of human guide and various other indoor safety skills and techniques (such as hand trailing a wall) are introduced first.



More advanced complex outdoor skills and techniques are then introduced.



Even the most adept travelers have a need for indoor and/or outdoor familiarization services from an O&M specialist



Visually Impaired Technology Use

Examples of assistive navigation technologies

Mobile phones ranging from conventional phones to smart phones	GPS devices	Google Maps	Sendero (LookAround)
Ariadne	Around Me	BlindSquare	mp3 players
Mobile Speak screen reader	Barcode readers	"Pen Friend" for labeling	A personal digital assistant (PDA) called "Freedom Scientific" with a braille display
A scanner with optical character recognition (OCR) technology	A braille printer ("Braille Embosser")	Text-To-Speech (TTS) technologies	Headphones to avoid interference with TTS applications in loud environments

Barriers that preclude adopting new assistive technologies

High Cost	Blocking other sense	Lack of standardization across navigation applications
Large size of devices, which render them less portable	Poor user interfaces	Unfavorable weather conditions

Technology preferences

Likes	Dislikes
Speech capabilities	Too many levels of instruction in menus
Windows-like features/menus	Any features relying on sight
Shortcuts	Difficult keyboards
LookAround and Localization features	Short battery life

Preferred technology input modalities

Speech/Voice
Tactile Buttons
Touch Screens/Gestures
Screen Reader

Preferred technology output

Audio
Vibration/Audio
Vibration/Audio/Braille

Technology training

- The need for technology training varies greatly depending on the individual and device in question. Some use personal training or assistance with new technologies, the majority do not.
- For learning complex technologies, it could take several days to weeks or longer. Simpler technologies could be learned in less than a day. New technologies are learned most rapidly when the directions and layout are clear and intuitive, and there is access to braille instructions.