## Descriptions of Assistive Technology Products

**Alternative input devices** allow individuals to control their computers through means other than a standard keyboard or pointing device. Examples include:

* **Alternative keyboards**—featuring larger- or smaller-than-standard keys or keyboards, alternative key configurations, and keyboards for use with one hand.
* **Electronic pointing devices**—used to control the cursor on the screen without use of hands. Devices used include ultrasound, infrared beams, eye movements, nerve signals, or brain waves.
* **Sip-and-puff systems**—activated by inhaling or exhaling.
* **Wands and sticks**—worn on the head, held in the mouth or strapped to the chin and used to press keys on the keyboard
* **Joysticks**—manipulated by hand, feet, chin, etc. and used to control the cursor on screen.
* **Trackballs**—movable balls on top of a base that can be used to move the cursor on screen.
* **Touch screens**—allow direct selection or activation of the computer by touching the screen, making it easier to select an option directly rather than through a mouse movement or keyboard. Touch screens are either built into the computer monitor or can be added onto a computer monitor.

**Braille embossers** transfer computer generated text into embossed Braille output. Braille translation programs convert text scanned-in or generated via standard word processing programs into Braille, which can be printed on the embosser.

**Keyboard filters** are typing aids such as word prediction utilities and add-on spelling checkers that reduce the required number of keystrokes. Keyboard filters enable users to quickly access the letters they need and to avoid inadvertently selecting keys they don't want.

**Light signaler alerts** monitor computer sounds and alert the computer user with light signals. This is useful when a computer user can not hear computer sounds or is not directly in front of the computer screen. As an example, a light can flash alerting the user when a new e-mail message has arrived or a computer command has completed.

**On-screen keyboards** provide an image of a standard or modified keyboard on the computer screen that allows the user to select keys with a mouse, touch screen, trackball, joystick, switch, or electronic pointing device. On-screen keyboards often have a scanning option that highlights individual keys that can be selected by the user. On-screen keyboards are helpful for individuals who are not able to use a standard keyboard due to dexterity or mobility difficulties.

**Reading tools and learning disabilities programs** include software and hardware designed to make text-based materials more accessible for people who have difficulty with reading. Options can include scanning, reformatting, navigating, or speaking text out loud. These programs are helpful for those who have difficulty seeing or manipulating conventional print materials; people who are developing new literacy skills or who are learning English as a foreign language; and people who comprehend better when they hear and see text highlighted simultaneously.

**Refreshable Braille displays** provide tactile output of information represented on the computer screen. A Braille "cell" is composed of a series of dots. The pattern of the dots and various combinations of the cells are used in place of letters. Refreshable Braille displays mechanically lift small rounded plastic or metal pins as needed to form Braille characters. The user reads the Braille letters with his or her fingers, and then, after a line is read, can refresh the display to read the next line.

**Screen enlargers, or screen magnifiers**, work like a magnifying glass for the computer by enlarging a portion of the screen which can increase legibility and make it easier to see items on the computer. Some screen enlargers allow a person to zoom in and out on a particular area of the screen.

**Screen readers** are used to verbalize, or "speak," everything on the screen including text, graphics, control buttons, and menus into a computerized voice that is spoken aloud. In essence, a screen reader transforms a graphic user interface (GUI) into an audio interface. Screen readers are essential for computer users who are blind.

**Speech recognition or voice recognition programs**, allow people to give commands and enter data using their voices rather than a mouse or keyboard. Voice recognition systems use a microphone attached to the computer, which can be used to create text documents such as letters or e-mail messages, browse the Internet, and navigate among applications and menus by voice.

**Text-to-Speech (TTS) or speech synthesizers** receive information going to the screen in the form of letters, numbers, and punctuation marks, and then "speak" it out loud in a computerized voice. Using speech synthesizers allows computer users who are blind or who have learning difficulties to hear what they are typing and also provide a spoken voice for individuals who can not communicate orally, but can communicate their thoughts through typing.

**Talking and large-print word processors** are software programs that use speech synthesizers to provide auditory feedback of what is typed. Large-print word processors allow the user to view everything in large text without added screen enlargement.

**TTY/TDD conversion modems** are connected between computers and telephones to allow an individual to type a message on a computer and send it to a TTY/TDD telephone or other Baudot equipped device.