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Voice Recognition for Blind Computer Users

Many people with no usable vision, who would need screen reading software to use a computer, are attracted to the idea of operating their computer by voice (known as voice in-voice out). However, the keyboard is still the most efficient way of inputting data into your computer. Providing there is no physical difficulty that makes the use of a keyboard impossible, we would recommend learning to touch type, before trying solutions involving using screen readers and voice recognition together.

This factsheet outlines the requirements of voice in-voice out and includes some solutions.

There is still no system offering easy and intelligent verbal interaction between man and machine (as seen on science fiction programmes), but rather complex solutions that work quite well if set up and used correctly.

Voice Recognition

One way to communicate with your computer is to speak to it. With voice recognition software, the right hardware, and some time and patience, you can train your computer to recognise text you dictate and commands that you issue. Success in using this software depends upon suitable hardware, training and technique.

Speech Output

You do not need to be able to see the screen to use a computer. Software called a screen-reader can intelligently send all information to a voice synthesiser - such as what you are typing, what you have typed, and menu options.

Combining the Two...Voice In/Voice Out

Using both systems together involves two main areas:

- Dictating and correcting text
- Controlling your programs

At any time this will include the voice recognition program, your screen-reader and the program you are using.

When issuing commands or correcting dictated text, it is vital to be confident that what you say is correctly recognised. If you manage to correct every mistake the recognition rate will improve, otherwise it may actually get worse.

Ideally anything you say (word, phrase or command followed by a pause) should be automatically echoed back to you. If the solution does not support this, then thorough reviewing of the text for mistakes is necessary.

Hands-Free Use

If the programs can be used without keyboard or mouse they are said to work ‘hands-free’.

Voice recognition packages range from complete hands-free use to some that require varying amounts of keyboard or mouse input.

The different screen-reader functions such as ‘say line’ or ‘spell word’, which would usually involve a key combination, are accessed by verbal commands that may or may not already be set up for you.

Difficulties with Voice In/Voice Out

Many problems are inherent in using voice recognition with speech output. Not least is that hearing words or phrases echoed back is often NOT ENOUGH for the user to be sure that there are no errors in the recognition or formatting of the text. For example, hearing the correct echoing back of your dictated phrase "I will write to Mrs Wright right now" will not tell you whether each of the three words that sound the same have been correctly recognised, capitalised and are grammatically correct.

Other examples might be "there", "their" and "they're", "here" and "hear", and even "youth in Asia" and "euthanasia", and 1,000 other examples which all sound very similar. Whilst the software's knowledge of grammar might get these correct most of the time, it is impossible to know unless painstaking reviewing is carried out.

It is also very easy to become disorientated when a command you have just issued is not recognised and you are suddenly taken somewhere unexpected. This can be at best frustrating, and at worst, disastrous.

These difficulties can be at their worst when first starting to use your system - when the software is learning how you speak and you are still learning how to use the software.

Another consideration is cost. Modern voice recognition software requires a relatively high specification PC to work well – we would suggest a minimum of a PIII 700Mhz processor with 512MB RAM.

Then there is the cost of both the voice recognition and screen reading software to consider. In some instances, additional software, such as Jawbone or J-Say, to help the voice recognition and screen reading software work together, is required.

IBM ViaVoice with Windows Screen-Readers

This combination does not give you completely hands-free use of your computer but can offer substantial relief from keyboarding if your work consists of inputting large amounts of text.

However, the program does not present information on the screen in such a way that screen-readers can be configured to automatically echo back phrases as you dictate. When correcting by voice, commands are also slow to be processed. Hence, this solution best lends itself to review and correction of the text from the keyboard after dictation has been completed.

Enrolment on ViaVoice is made difficult for vision-impaired users as it requires the reading of text from the screen which can only be accessed by a screen-reader with great difficulty. Enrolment is only realistically feasible if sighted assistance is available. However, initial recognition can be very impressive.

Product	Guide Price	Supplier
IBM Via Voice	From £40	Nuance

Dragon Naturally Speaking with J-Say and Jaws

J-Say is designed to make it possible for blind people to work with speech recognition software. It acts as an interface between Dragon Naturally Speaking and "JAWS" screen reading program. This combination of programs will make it possible for a totally blind person to dictate and compose documents hands-free. This solution requires technical aptitude, commitment and a significant amount of training.

J-Say comes in Standard and Professional versions. The Standard version works with Naturally Speaking Preferred and requires some access to the keyboard. The Professional version requires Naturally Speaking Professional and provides fully hands-free use of the computer.

J-Say is a replacement for Jawbone, a similar product from T&T Consultancy, now only available as an upgrade to existing Jawbone users.

Product	Guide Price	Supplier
J-Say Standard	£300	T&T Consultancy
J-Say Professional	£400	T&T Consultancy
Jaws	£660	Sight & Sound, T&T Consultancy
Dragon Naturally Speaking Preferred	£150	Nuance, T&T Consultancy
Dragon Naturally Speaking Professional	£470	Nuance, T&T Consultancy

Useful Factsheets

The following factsheets are relevant to this subject. We also have skillsheets that are step by step guides to customising your PC.

- Voice Recognition Software – An Introduction
- Vision Impairment and Computing
- RNIB Speech Output Systems