Adapt-IT

ASSISTIVE
ADAPTIVE
ACCESSIBLE

The Beginners Guide to Assistive IT and Gaming

Making IT and Gaming accessible for all

Assistive Hardware

Assistive Software

Assistive Services

DISABILITYEXPO Edition

Putting the I in disability...because I matter!

DISABILITYEXPO

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About The Disability Expo

The People Behind the Disability Expo and its Origins

The Disability Expo is brought to you and built on the success of RISE4disability. 'Resource & Identify Suitable Equipment', is a central information service for the disability market. Through the organisers experience, both personally and commercially, this has allowed the RISE organisation to grow organically. The success of RISE has lead to the development of the Disability Expo.

RISE

10 years disability event experience

The Disability Expo - a New Disability Movement

The Disability Expo is built on the established working relationships with leading organisations including charities, equipment manufacturers and health and social care providers. This foundation added to personal experiences delivering services and support to those that require it, gives the Disability Expo organisers a genuine understanding of the unique needs of their audience and exhibitors.

The Disability Expo is designed to enable an unparalleled and engaging experience for people with disabilities of all types and levels across all aspects of their lives. With engaging talks from disabled ambassadors and leading industry technologies and services, the Disability Expo will be a truly assistive capability wonderland. The aim is to support disabled people to make educated decisions and help businesses and local services, to better understand what is available to help them be truly inclusive.

The Event Will Be Welcoming To All Empowering Stylish Thought Provoking Fun Innovative Accessible Inclusive Diverse Engaging Entertaining Inspiring Sociable Celebratory

#IMatter

We are more than a disability exhibition, we're a movement.

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Forward

"As an occupational therapist who qualified in 1991, my idea about assistive technology was focused on external alarms that flashed to alert neighbours if a disabled person was in trouble or via expensive environmental control systems such as those pioneered by Possum and Hugh Steeper. These companies still exist but the range of technologies now available have grown considerably. They have also become mainstream. How many of us have tried asking Siri or Alexa for advice? Or used Hive to sort out our heating?

That, though, is the start of the problem. What technology is going to work best for me or the person I am supporting? Where do I get it from? How do I keep it updated? Cyber Security? Funding? Who can I go to for trusted advice?

This is the book for you. Written in accessible language, it is a guide to all the above queries. I am pleased to say that Adapt-IT are THE trusted advisors that you need. Check them out at Disability Expo but, if you miss them there, contact them at your convenience. They WILL find an answer to your IT query."

Mike Cowan-Jones
Managing Director of ARMS Rehab Limited and Disability Expo Ambassador

ARMS Rehab Limited provides training and advice to health, social care and education providers as well as to people with disabilities & neurodiversity. We work in partnership to achieve your goals.
Info@armsrehab.co.uk http://www.armsrehab.co.uk/

arms
ASSESSMENT & REHABILITATION MANAGEMENT SERVICES

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In Partnership with

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Services Client Journey

Building a Solution For You

Solution Setup

Assistive System & Software Training

Through Life Support & Capability Management

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Digital Enablement

8% of Children

Approximately 14.1 million people with a disability across the UK

46% Pension Age

19% Working age adults

I.T. is not a 'nice to have'; it is a necessity to live and operate in today's digitally enabled world.

Adapt-IT

Making IT accessible to all is an essential part of integrating with the modern world.

Over the next decade, with pension ages rising and more people working later in life, the working age adults with a disability will increase, meaning assistive technology and digital enablement will need to become more common place.

15-20% of global population exhibits some form of neuro-divergence

Different ways of thinking and neurodiversity will increase and requires a step change in how IT and gaming is accessed and made available.

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Digital Enablement

In our community, we all know one size doesn't fit all.

'What is the user's IT requirement'?

Play games, engage in an educational or work setting, create media, documents, emails. Interact with society through the web, collaboration suites like Zoom or Teams, become a YouTuber or Twitch streamer.

Where will the activities take place?

At home, place of work, school, college or university, on the move or all the above?

Only 54% of disabled people are in work

1 in 59 children has Learning Disabilities

'What abilities does the user have'?

What a user can't do *is* important, but understanding what a user *can* do shapes the solution approach:

- Sight ability
- Mobility and co-ordination
- Ways of working and learning

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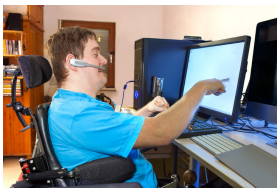
What is Assistive Technology

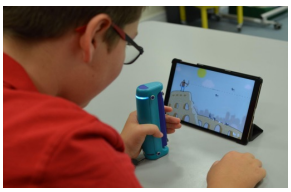
Assistive technology is all around us and supports people in being able to do things easier, faster and more efficient. For work, rest and play.

Assistive technology enables a person to do something better or in an easier way and supports multiple user requirements.
Depending on what the user requires, a particular assistive technology can support the disabled community to better access education, work and social interaction.
Assistive technology can be both a mixture of hardware and software.

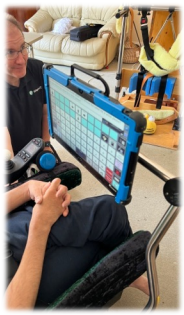


Enable Accessibility

Support Rehabilitation



Support Prevention or Progression



Sensory, Experience or Behavioural Support

Cursor and Navigation Control

The main control mechanism for IT is the mighty cursor.

Cursor control is a core focus for any computer-based system. A user needs to be able to move the cursor and select the icon that the cursor is pointing to. This requires hand-eye coordination, dexterity and, in most cases, some form of movement. The following pages gives an overview of differing solutions to support this critical function.

Trackball

Penguin

HandShoe

Thumb Mouse

Head Mounted

Anti-Tremor Device

The standard device is the trusty mouse. But there are a lot of different kinds of mice that suit differing needs. The trackball allows for the arm and shoulder to be kept still while allowing your fingers to roll the ball to control the cursor. A similar approach is the handheld thumb mouse, where movement is kept to a minimum. If hand control is difficult, a head mounted mouse could work as a good alternative.

The Penguin mouse allows the wrist to stay vertical and is particularly good for people who can't lay their hand flat or has some curvature of the fingers.

The ergonomic mouse model shown is the HandShoe designed to maintain comfort and wrist/forearm positioning.

A challenge for a lot of people is sudden involuntary movements or shakes that can interfere with the cursor and cause severe frustration. This is where an anti-tremor device can help by cancelling out the sudden or involuntary movements.

Cursor and Navigation Control

Joystick Control

A standard mouse doesn't suit everyone due to the control needed on one hand and the range of movement needed. A good replacement for a mouse is a joystick. This still requires some movement and coordination however, with the addition of being able to change the handle types it can make them more accessible to a wider userbase.

Pretorian TECHNOLOGIES Inspired by You!

A Lipstick mouse enables full mouse control by mouth with puff and suck switch.

Joysticks come in differing sizes and have differing features depending on the model. They can be used for computers, gaming consoles (with adapters), tablets and phones.

- Scroll lock to allow only Up and Down, Left and Right or Page scroll movements simplifying control.
- Anti-Tremor that cancels out involuntary or sudden movements.
- Left and Right click buttons.
- Ability to replace the Left and Right clicks with large buttons.
- Can be used for gaming and mouse control.

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Cursor and Navigation Control

Eye Tracker Systems

Eye trackers are now widely available, allowing a user to control their IT and now even their games with the movement of their eyes. This kind of technology requires reasonably good head control as well as eye control. Eye trackers are now available for computers, mobile and fixed as well as tablets. Eye trackers come in different sizes and mounting options to enable the perfect positioning for a user.

Eye Gaze AAC mounted Eye Tracker

Tobii AAC mounted Eye Tracker

iPad mounted Skyle Eye Tracker

Laptop with Built-in Eye Tracker

Tobii Eye Tracker glasses

Skyle Eye Tracker for monitor or similar mounting

Eye trackers help with many differing conditions from physical disabilities through to severe fatigue and chronic pain.
In a lot of cases this will be combined with other control methods to enable change when a condition changes or when the user needs it.

Cursor and Navigation Control

Clicking and selecting differing functions

Once you have got the cursor to where you need it, you then need to be able to select. There are multiple ways to achieve this on a joystick. This can be done through the buttons on the joystick if they have them or through remote switches (such as the Smoothie 75). The buttons come in differing sizes 75mm or 125mm for the Smoothie, but larger and smaller alternatives are available.

Left Click

Function select

Right Click

Smoothie 75 Switches

Foot Pedals/Switches

Quester Gaming and Mouse Joystick

The larger switches allow for easier access and control, but there are other types of switch:

Wobble Switch

Grasp Switch

Finger Switch

Suck and Puff Switch

Switch Based Control

Clicking and selecting differing IT and Gaming functions with Switch interface boxes.

Switches can be very flexible; in that they can represent any functions you may need.
For example, you can use 4 buttons to represent the arrow keys or mouse directions, enable switches to open specific applications or carry out specific functions in applications or games.

The interface boxes and the Switches can be wireless or wired. Wireless switch boxes can allow for the switches to be mounted on a wheelchair or away from the computer. The flexibility of the functionality depends on the switch interface you use. You can get USB switches that allow many functions but are less common in the assistive applications and can be more expensive.

The switch boxes replicate keyboard or mouse function presses, which can then be linked to specific applications and functions so that when they are pressed the application opens or the function is selected.

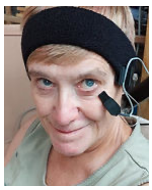
The gaming systems such as the Quester and Xbox adaptive controller is programmable to enable wider gaming accessibility. Gaming will be covered in more detail later.

Hypersensitive Control

Hypersensitive Joystick and Switches

In certain cases, the switches, mice, joysticks may still not be suitable due to severe limitation of movement or strength. In these situations, it may be possible to use hypersensitive switches and controls.

These controls are designed to enable control with the slightest of movement or muscle twitch. Examples of these sophisticated and very sensitive devices are designed and created by Celtic Magic.



Similar to the joysticks and regular switches, the sensitive switches have the same functionality and application e.g., mouse control, application or function control, Gaming. But they need the minimum of movement or pressure. The switches are designed to be mounted anywhere within reason on the person, where some form of motion can be achieved such as detecting muscle twitches near the eye, on the foot or on the hand.

So How Sensitive are they?

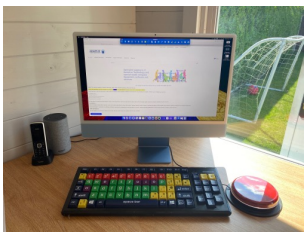
The joysticks will operate with just 5 grams of pressure. This is the equivalent of breathing gently on the back of your hand. The switches will activate with 0.05 mm of movement, the equivalent thickness of a piece of paper.

Keyboards and Text Input Devices

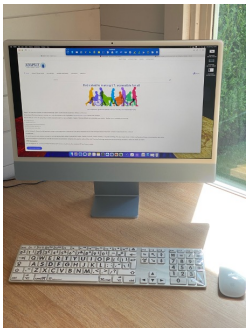
Keyboards and Programmable devices

Keyboards come in all shapes and sizes and enable differing functions to take place. The Keyboards we are all used to are the QWERTY keyboard type in the UK. But this is just one function. Programmable keyboards offer a lot of assistive features, enabling specific functions or activities to take place through the push of a button. Keyboards come in all shapes and sizes for two hand and single hand use. As well as ergonomic shapes to support wrist, shoulder and arm support. Keyboards need to cater for a lot of disabilities to enable their usage, such as differing neurodiversity's or impaired vision.

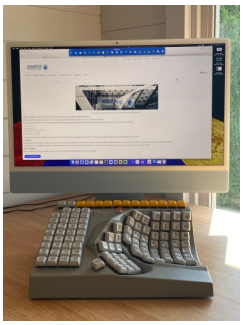
Braille Keyboard and Display



Monster 2 Large Key Multi Coloured Uppercase Keyboard



Accuratus Hi-Contrast Black on White Apple Keyboard



Maltron Single-handed Touch Type Keyboard

Monster 2 Hi-Vis Keyboard with Keyguard

Chonker Keys programmable Keyboard for Video Conferencing e.g., Teams, Zoom

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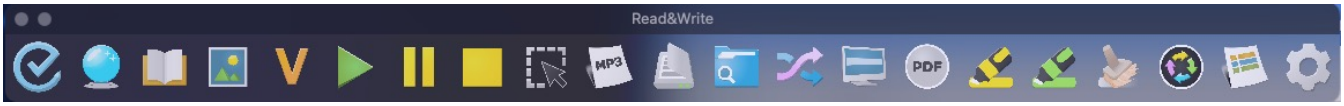
Assistive Software

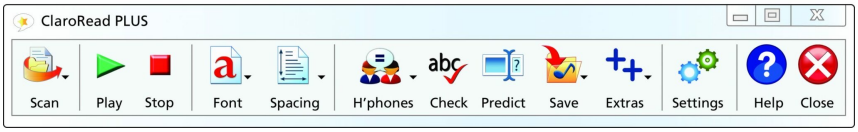
Assistive Software for Neurodiversity

Assistive software enables a user to be able to use I.T or to enable neurodiverse people to learn, collaborate and support productivity.

A core part of assistive software is to support how information is visualised, represented and consumed from I.T.

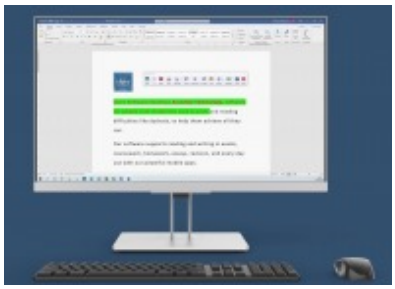
texthelp® Read&Write ClaroRead





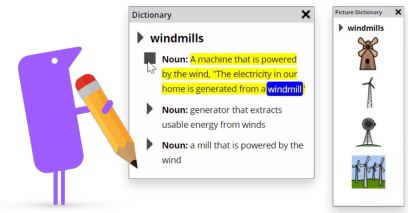
Intuitive toolbars to access the tools you need

Text to speech from any type of document or website. Turn documents and PDFs into audio to listen to on the move or at another time.

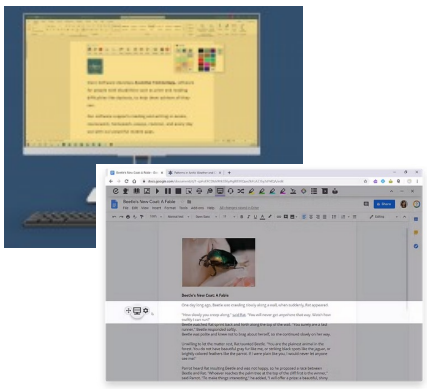


Have text read back to you as you type it.

Text highlighters to help with focus and outline core points.



Picture dictionary providing meaning of words and visual representation to aid with understanding.



Screen filters to support visualisation for SEN users customisable to the user.

Reading guide to help with focus and tracking while reading.

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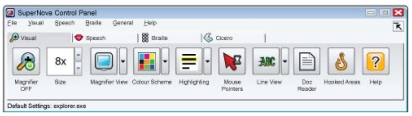
Assistive Software

Assistive Software for Sight Impairment Computer and TV

Supporting sight loss is all about using the other senses to enable visualisation on the computer. Audio prompts, maximizing visual stimulus and navigation, joined with visual support such as magnification allows people with failing sight or partial sight to still access I.T. functionality through a computer or their TV.

Dolphin SuperNova



Intuitive toolbar to access the tools you need with easy shortcuts that can be mapped to switches for easy activation

Clear cursor positioning

Magnification with differing visualisation options to suit the users needs.
Pixel perfect magnification making letters crisp and clear at any size.

Span across multiple monitors and platform types, computer and tablets

Interfaces with Braille display

Use your voice to operate specific functions and write documents, emails, or access websites

Dolphin GuideConnect

Access functions such as email, web browsing, TV through a simple large interface with Guide Connect

Access radio, audio books, TV services such as Netflix and Amazon

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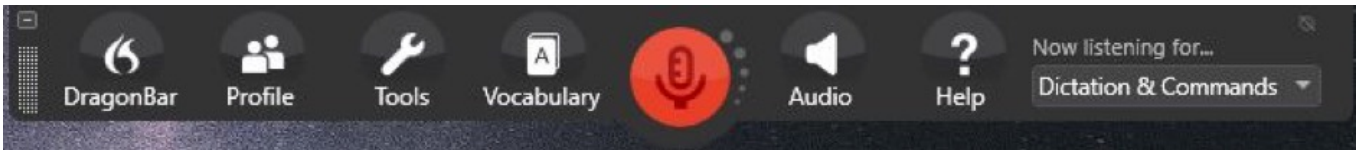
Assistive Software

Assistive Software for Voice Dictation and Control with Meeting and Lecture Support

Talking into computers both for control and input has been around since the 1960's albeit in science fiction.
However, since the 1990's, Dragon Dictation, which became Naturally Speaking and now owned by Nuance Dragon, makes this a reality.
Dragon enables not only full control but also direct content input.
There's high accuracy with specialist versions for the legal and medical industry.



Dragon can help you if you have:

- Dyslexia
- RSI
- Carpal tunnel syndrome
- Parkinson's
- Multiple Sclerosis
- Arthritis
- Speech Therapy
- Or simply need to write faster!

Complete Meeting Solutions

- Capture lectures/meetings
- Dragon converts voice to text
- Align text of speech to presentations
- Requires configuration and training

With all assistive software training and correct setup is essential!

Assistive Training and Awareness

The Importance of Training

Regardless of how well a system is designed or how intuitive it is, training and setup is essential to get the most out of your investment in any assistive technology.

There are many types of Training depending on the situation the assistive technology and software is being deployed.

End User Training will focus on usage, workflow and how the user likes to operate. This should include customisation and setup as part of the initial phase of training.

For guardians, carers and teachers, understanding of the assistive technology deployed and how it works is important to ensure that if there are any frustrations or issues for the user, they can support the user.

General Awareness Training

What is assistive technology? What is it capable of? How can it be deployed to help make the workplace more accessible?
This can provide awareness not only to business, schools and universities but the medical professions or disabled community.

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Mounting Solutions

Ensuring Positioning and Reach

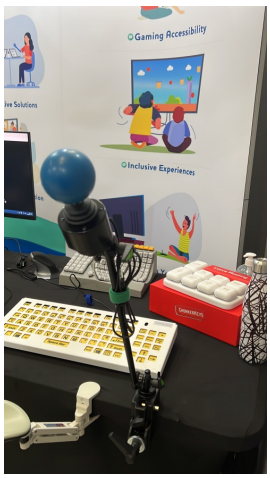
Assistive technology must be mounted to enable comfortable use and achieve the accessibility needed. For mounting there is no one size/shape that fits all. There are a lot of system solutions.

There are many core areas where mounts are used and interchangeability between differing locations and requirements is essential.

Areas of focus:

- Wheelchair or mobility fixtures
- Desk mount/fixing
- Mobile
- Free standing
- Body Mount

Rehadapt



By ACCURATUS

Gaming Systems

Assistive Gaming Hardware

Assistive technology and Gaming are now starting to be commonplace with more companies focusing on supporting people with differing abilities to access the latest gaming platforms. Gaming is an amazing past time that has so many benefits from SEN to rehabilitation to just having a good time with friends.

In most cases it is possible to get people access to Gaming. Features such as Microsoft's Xbox copilot and adaptive controller allows for collaboration between the main gamer and a carer or sibling to control different elements of a game to make even the most complex games accessible. For instance, Call of Duty.

GRIPABLE

Gripable Rehabilitation Gaming

Microsoft's Xbox adaptive controller is the lead in the market and the most versatile. Allowing large joysticks and switches to be connected.

Microsoft

Game On allows gaming to be controlled by your Eye Tracker on your PC or Xbox.

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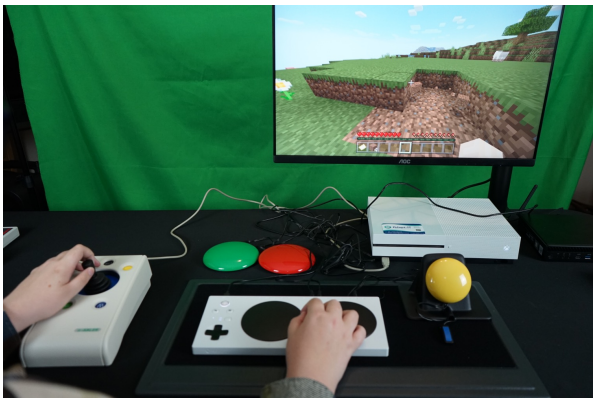
Eye Tracker Gaming

Gaming Systems

Assistive Gaming Hardware Setups

There are also technologies that were not originally designed to be assistive but provide access to gaming for people with disabilities. For instance, converters that allow different controllers to work with different systems.



Minecraft on Xbox One
Microsoft's adaptive controller with Pretorian Optima joystick and large buttons playing

PC Gaming
with Pretorian Quester Gaming System

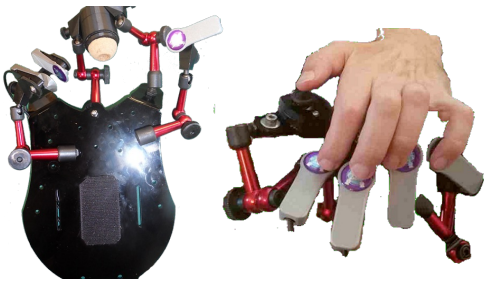
Wipeout Fusion on Play Station 3
Microsoft's Xbox adaptive controller with Pretorian Optima joystick and large buttons playing

PlayStation 3 or 4 Adapter
A Brook XE converter can use an Xbox adaptive controller

Gaming Systems

Assistive Gaming Setups

Eye Tracker Gaming
Playing a space-based game similar to Wipeout



Hypersensitive Control
Setup for Gaming from Celtic Magic

PlayStation 5
Adaptive Controller. Project Leonardo for assistive gaming

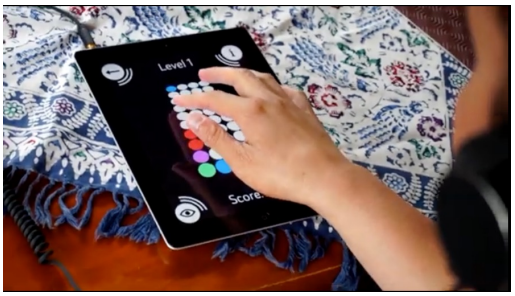
Gaming Systems

Assistive Gaming Software

As well as assistive hardware, more support is being built into games.

dowino
GAMES, APPS & FILMS FOR CHANGE

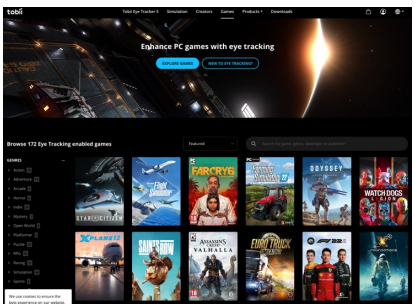
Dowino, a French company produced Blind Legend aimed at people with limited sight.



Audio Game Hub

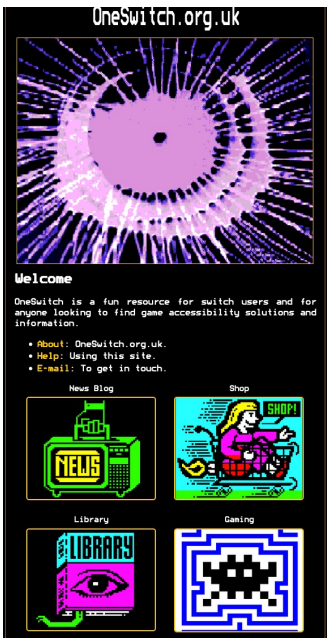
Audio Game Hub provide a range of 13 arcade games that use audio as their primary interface, making them accessible for both sighted and non-sighted gamers. https://audiogamehub.com/

Even large commercial titles are becoming more accessible with blockbusters such as God of War: Ragnarök having an extensive range of accessibility settings.



Tobii Gaming

Provides access to the latest games that have enhanced eye tracking.
https://gaming.tobii.com/games/



One Switch

Operated by Barry Ellis provides a wide range of gaming resources for single switch game play.

www.oneswitch.org.uk/

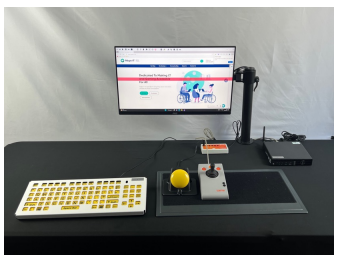
Complete Assistive IT Systems

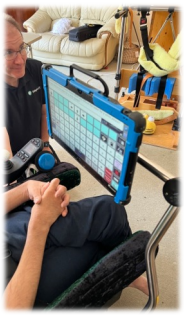
‘Accessible IT for All’

This section is a bit of a capture all as, what is a complete assistive IT solution? The simple answer is, well, it can be anything that includes a computer device. A tablet can be assistive because it allows a touch interface rather than needing a mouse. A computer setup with the accessibility settings in Windows to have a bigger cursor and voice notifications again, this is assistive IT.

Assistive IT can have some or all the elements this document has discussed. But from Adapt-IT’s perspective, assistive IT is a mixture of hardware and software designed around a person's IT requirements. It may not be a single system, it may be multiple systems focusing on different needs covering lifestyle, fun, community engagement, on the move, in the workplace or support education. With the right support, assessment, design and support IT can truly be accessible for all.

I.T. is assistive, it allows easier collaboration, enables tasks to be done quicker and more accurately.





Adapt-IT ASSISTIVE ADAPTIVE ACCESSIBLE

DISABILITYEXPO
Putting the I in disability...because I matter!

Through Life Support

Cyber Security and Support for Assistive Technology and IT

Something that everybody needs is ongoing support. Not everybody is an IT guru and things can just go wrong.

One of Adapt-IT's core and unique offerings to our customers is our Cyber Safe Support Package. This package is for people who buy our systems or just want support of their existing systems.

Adapt-IT offer a yearly package, aimed specifically at people with disabilities and/or those who use assistive technology to access IT or Gaming. The service offers:

- Peace of mind to the users and their support.
- Secure setup of the IT, Software and Assistive Technology.
- Installation of new equipment and software (remotely).
- Maintenance of all software updates.
- Parental Controls (if required).
- Account lockdown to support duty of care.
- Access to specialists via the telephone and email support during working hours for end-user, carers, managers.
- Remote dial in to diagnose and fix issues.
- Remote monitoring of the IT against viruses and other potential issues.
- Social media and online guidance and support.
- Business plans available for Access to Work support.
- Regular newsletters on differing areas of interest related to Assistive Technology and Cyber Security.

IASME CONSORTIUM | GDPR CERTIFIED | CYBER ESSENTIALS CERTIFIED

Ultimate Guide to Assistive Technology

Adapt-IT
Cyber Safe Support

Adapt-IT
ASSISTIVE
ADAPTIVE
ACCESSIBLE

About Adapt-IT

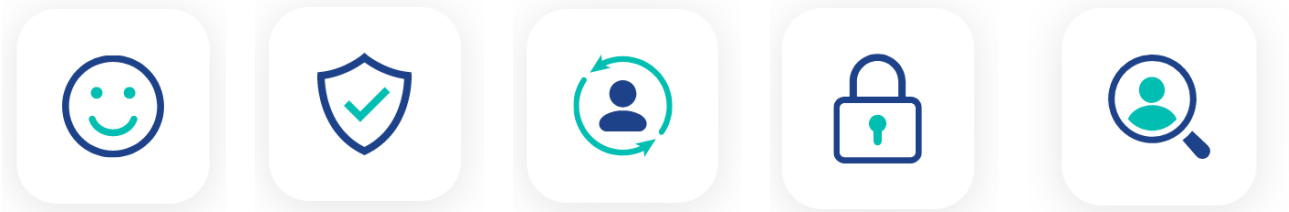
Adapt-IT Limited is a Worcestershire based business and was created in 2001 by Martyn Slyper, to provide Assistive Technology, such as, specialist computer equipment, software, and training, to allow adults and children to use technology in the most efficient and comfortable way.

In 2021, it was bought by Simon and Jane O'Gorman of TRaC Defence Holdings Limited, a specialist organisation for Cyber Security and IT service provision. With team member Jess, we will continue this ethos and champion secure and accessible IT for everyone.

Our Mission

To make information technology secure and accessible for everyone, at home, school and in the workplace. No one should have to face barriers when trying to do their job, studies, or hobbies. We strive to provide products that allow everyone to have a comfortable and effective computing experience, without the fuss.

Our Values



Adapt-IT are specialist I.T and gaming solution and service providers for people with disabilities.

www.adapt-it.co.uk
support@adapt-it.co.uk
Tel: 03300 564079

DISABILITYEXPO

Putting the I in disability...because I matter!

In Partnership with

Adapt-IT
ASSISTIVE
ADAPTIVE
ACCESSIBLE

Together Making IT and Gaming Accessible to All

By ACCURATUS

arms
ASSESSMENT & REHABILITATION
MANAGEMENT SERVICES

Pretorian
TECHNOLOGIES
Inspired by You!

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