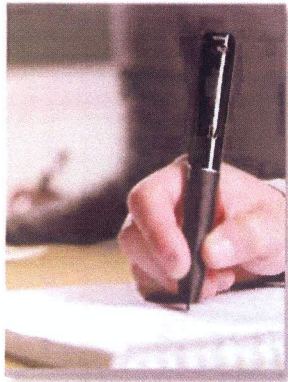




### Ballpoint pen meets audio recorder in Livescribe's Echo Smartpen



The Livescribe Echo Smartpen is an ingenious amalgamation of audio recorder and ballpoint pen in one small device which together can make and store copies, as digital files, of both voice recordings and handwritten notes. These can be played back, of course, but more importantly can be transferred to computer for any required manipulation.

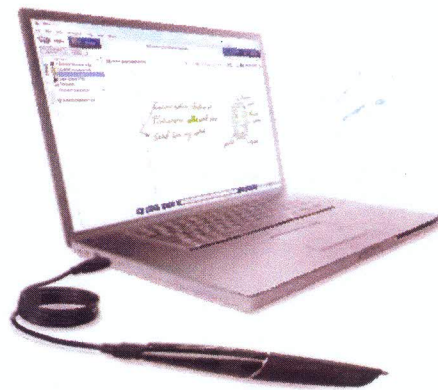
The Smartpen looks like a thicker-than-usual pen, with a plastic and rubber construction, the half towards the point being rubber and providing a really comfortable grip. The 'sharp end' is protected with a plastic cap which was difficult to remove. Although this adds to the security of the tip, there is no means of storing the cap on the pen, so it is easily lost, the tip again becoming vulnerable. This is important because the tip encloses an infra-red camera as well as the ballpoint – it is the camera which records the tracking of the ballpoint on the paper, so it is essential to maintain its accuracy. A spare cap is included with the pen, showing that Livescribe are aware of the problem, but this only solves it once.

The plastic section of the body contains the microphone and internal memory of either 4 or 8GB, as well as the incorporated, rechargeable battery. This is recharged via a USB connection – the micro-USB connector is in the 'rear end' of the pen, furthest from the tip. It provides full connectivity to a computer's USB input. There is also a 23x6mm LED screen which shows the pen's status. A full charge of the pen gives 5 to 6 hours recording of concurrent audio and text and more than twice this of text only. It should be noted that battery performance

will be affected by choice of audio quality – low, medium or high - and microphone sensitivity, which can be set for small or large rooms or left on automatic. There is no means of filtering out unwanted noise, so much so that the author found the sound of the pen writing notes or drawing was also recorded and interfered considerably with audio quality, when trying to produce synchronised audio with text. The user's own breathing, sniffing or any incidental contact with the pen, as well as noise generated by others in close proximity, was also recorded.

*the Livescribe Echo Smartpen with its accompanying software is quite simply brilliant*

Essential to any pen is some form of writing surface and the same is true of the Smartpen, but the paper also needs to be 'smart' and it is. Livescribe's special dot paper has hundreds of tiny dots printed all over it. The infrared camera in the pen's tip takes 72 photographs of the paper every second. The camera captures a 36-dot grid, which the software then deciphers to give pin-point coordinates for the pen's position. The positional information that is recorded is turned into the digital version of your document, perfectly tracking the movements of the Smartpen as you write and draw with it. Yes, drawings too are recorded and when



audio recordings are made whilst writing notes, the special paper allows the two to be synchronised. Pre-printed icons on the paper sheets act as 'radio buttons': tap on the 'Record' button and the microphone will start recording audio until you pause or stop it, using the appropriate buttons. You can play back an audio recording and jump to specific positions in the audio track. There are buttons which allow you to adjust playback speed and volume, while standard, financial and scientific calculators are also available in dot-paper form and appear inside the front cover of the notebooks in which the paper is supplied – inside the back there's a QWERTY keyboard!

The steps into and the results of a calculation are shown on the pen's screen.

The obvious application is to record a lecture or talk and write notes as it proceeds – the audio and written text will



reviews



processing program and email application.

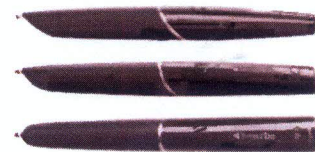
you can convert handwritten notes to editable text

Other useful functions are available through the use of the Livescribe Connect Premium software, included with the 4GB or 8GB Smartpen packages. All of the handwritten notes and drawings, as well as audio recordings, can be sent as .pdf files or pencasts directly to a recipient's email, smartphone or iPad or to a Facebook page or GoogleDocs. Finally, as if all of this is not enough, you can even print your own smart paper, though you will need a colour laser printer that is Adobe PostScript-compatible and has a print resolution of 600 dpi or greater.

The Livescribe Echo Smartpen with its accompanying software is quite simply brilliant, but it is a highly specialised product that needs special ink refills as well as special paper. Its particular attributes are of course reflected in its price overall, so it may not be appropriate to recommend it to students, even though it may be of benefit to them. ■

Visit: [www.livescribe.com/uk](http://www.livescribe.com/uk)

Livescribe pens are available from Amazon, Currys, Maplin, MicroAnvika and PC World. The 4GB pen is between £109 and £219 including VAT, though the RRP is £150, VAT inc. Replacement refills are usually available online in packs of five, at around £5 per pack, while 4 x A4 ruled paper notebooks will cost around £15. MyScript for Livescribe seems only to be found online at [www.visionobjects.com](http://www.visionobjects.com) priced at about £30. Both pen and software are extremely easy to install and set up and PC users will need:



**For Livescript:**  
600MHz CPU or higher  
300MB free space  
Windows XP with SP3 or Windows Vista or Windows 7  
Internet connection for software download  
USB 2.0 port

**For MyScript**  
1GHz CPU or higher  
37Mb free space  
Screen resolution: 1024x768 minimum  
Windows XP with SP3 or Windows Vista or Windows 7  
Recommended RAM: 512 Mb  
Livescribe desktop version 2.1 or higher  
Installed: Internet connection for application activation.

**For Connect Premium**  
System required as Livescript above, plus Smartpen firmware version 2.7 or later  
Active Internet connection for transmitting pencasts via email etc.



Ken Cheetham,  
Student Support  
Disabilities Unit,  
Cardiff Metropolitan  
University

be synchronised. It is also possible to record the talk via the microphone, paying full attention to what is being said and then to add text notes later while playing back the audio from the pen. These notes too will be fully synchronised with the audio. You can also add bookmarks in either case to help navigate quickly to a particular section of a recording. Again, by turning on the pen and not tapping the 'start recording' button, you can make notes without audio and then start recording in the usual way if you need to. Similarly, you can record audio only without using the special paper – press and hold the

pen's power button for about 6 seconds until the recording timer appears on the screen. Turn off the pen to stop. Later you can play back the audio while writing notes on dot paper and the two will synchronise.

You will no doubt want to convert your handwritten notes to text and for this you will need to purchase a software package called MyScript for Livescribe, which lets you send handwritten notes directly from the Livescribe Desktop for conversion to editable text. It also converts drawings and tables into printable forms. Your edited results can be saved as files or sent directly to your word