

Logging in a wireless wonderland

Here we look at some further developments in the rapidly-changing world of data logging and interfacing.

Texas TI graphical calculators have been used by science departments for data logging for a number of years. We revisit them here because the latest models have some new features that highlight interesting developments in interfacing technology. Figure 1 hints at what these features might be.

The picture shows a Texas TI-Nspire CX calculator connected to a temperature probe via a mini USB port. Nothing new here, except perhaps for the colour screen, but take a closer look at the yellow plug-in module. It sports a wireless symbol, because this device can now join a dedicated WiFi network.

This is done by attaching a USB wireless access point (figure 2) to a classroom computer. Software then allows the teacher to look at what is happening on individual handhelds or to send data to and fro. Individual students can be selected to be “live presenters”, showing their results on the central PC. There is also a facility to set up multiple choice tests (with pictures) or class polls.

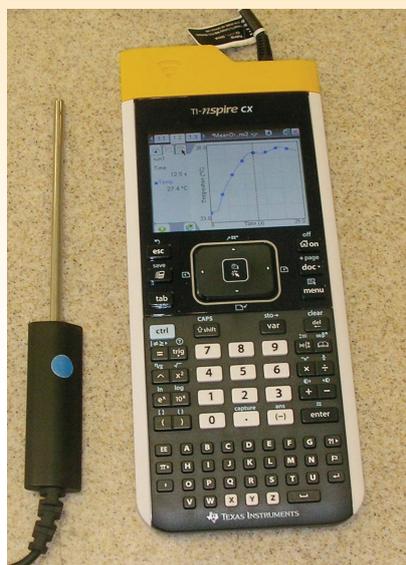


Figure 1 - Texas TI-Nspire CX calculator and probe.

On its own, the TI-Nspire has a fairly lowly sample rate of 200 Hz, but berthed in a cradle (Figure 3), this increases to 100 kHz. The cradle adds 3 analogue ports and 2 digital ports that are compatible with most Vernier sensors.

At the time of writing, a TI-Nspire costs £80, the cradle £100. WiFi hubs, wireless adapters and sensors are available separately. Texas instruments are keen to lend out units on a trial basis. Contact us at SSERC for further information. The Labquest 2 is the latest incarnation of Vernier’s touch-screen handheld interface (Figure 4).



Figure 2 - TI WiFi access point.

The Labquest 2 takes a different approach to wireless connectivity. It can be connected to a school’s wireless network. The unit then generates a web address and QR code (Figure 5). Any other browser-equipped device connected to the same wireless network can then “see” the Labquest, can access its data and even start and stop data acquisition.

Not every school has a wireless system, so the Labquest allows you to build a so-called ad-hoc network with the interface itself at the centre. Figure 6 shows the sort of screen that appears on a smartphone linked to the Labquest.

Both the TI calculators and the Labquest are distributed by Instruments Direct in the UK (www.indirect.co.uk).



Figure 3 - TI-Nspire in cradle.

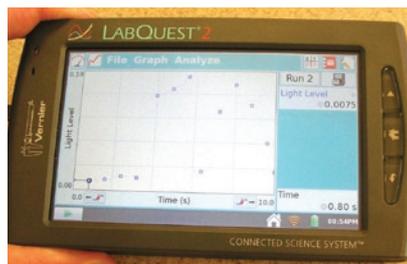


Figure 4 - Vernier Labquest 2.



Figure 5 - QR code.



Figure 6 - Smartphone Labquest screen.