Getting In Touch

Keyboards at first seem much alike. But some are distinctly better than others, and work in quite different ways

A computer's keyboard is an important part of the system. It is, after all, the way you communicate with the computer. The keyboard must be given as much consideration as the memory capacity, or the quality of the graphics.

Microcomputers have inherited the typewriter's Qwerty-style keyboard — so-called because the first six letters on the top row of keys spell QWERTY. In the early part of this century, the individual characters were positioned on the keys in such a way as to slow typists down so that they wouldn't wreck the flimsy mechanisms!

By the early 1950's when computers first came into commercial use, the QWERTY layout was the standard system for typists and became the standard entry device for computers as well. Today's microcomputer owner is stuck with the QWERTY system which is fine for trained typists, but sometimes difficult for the newcomer to master.

When computers were costing tens of thousands of pounds, the cost of a mechanical keyboard was negligible. But developments in microprocessor technology dramatically reduced the cost of the microcomputer's electronic components.

By the time the Sinclair ZX81 came along, a typewriter-style keyboard could make up a significant proportion of a microcomputer's manufacturing cost. The mechanical moving keyboard, found on models such as the Dragon or the BBC Microcomputer, uses actual switches under the keytops (see illustration on opposite page). When the key is pressed, the internal contacts close to complete a circuit. Switches like this contain numerous components and raise the cost of the keyboard considerably. The BBC computer has 74 keys and some models have more.

One solution to the problem is a new, cheaper type of keyboard. The thinking behind the 'touch-sensitive' keyboard of the ZX81 was that most of the people who bought microcomputers would be mainly interested in playing games and writing small programs.

These activities involve a fairly minimal amount of keyboard work, so it seemed logical that potential micro users would be prepared to settle for a lower quality keyboard. If the advantages of a conventional typewriter-style keyboard could be sacrificed considerable savings could be made.

The ZX81 was designed with a touch-sensitive keyboard, eliminating most of the bits and pieces. This brought the price of the model down, but it didn't provide the ultimate solution. The trouble with a touch-sensitive keyboard is that it doesn't provide much 'tactile feedback' (i.e. you are never quite certain that the key you have just pressed has registered in the computer unless you watch the screen).

Sinclair introduced, for its next product — the Spectrum — the membrane keyboard (see diagram). This kind of keyboard is an improvement, but it still lacks the tactile feedback of the typewriter style.

Several relatively low cost computers (including the BBC, the Dragon and the Lynx) have 'professional' typewriter keyboards. The advantages of typewriter keyboards become apparent when the computer is subjected to heavy use for word processing. The familiar typewriter feel enables lots of work to be done quickly.

There is another category of keyboard that lies somewhere between the full moving keyboard and the membrane type of the Spectrum. These are often called 'calculator type keyboards' and are found, for instance, on the NewBrain and the Oric-1. The keys provide a better 'feel' but are small, stiff and are less suitable for touch typing than fully moving typewriter-style keys.

One way of partially overcoming the lack of

The Keyboard Matrix

The keys on a computer keyboard are actually switches connected to a grid of wires. The illustration shows how pressing a key connects two wires on the grid. For each key there is one, and only one, pair of wires involved. Each key therefore makes a unique connection on the grid, enabling the computer to figure out which key has been pressed

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