Direct input methods.

In this report I am going to explain the different direct input methods starting off with bar codes.

A single barcode number is actually seven units. A unit is either black or white. A unit that is black would display as a "bar". A unit that is white would display as a "space". Another way of writing a barcode unit is "1" for a single unit "black bar" and "0" for a single unit "white space". For instance, the number "1" is composed of the seven units, "0011001" or "space-space-bar-bar-space-space-bar". Remember, a single barcode number requires seven units.

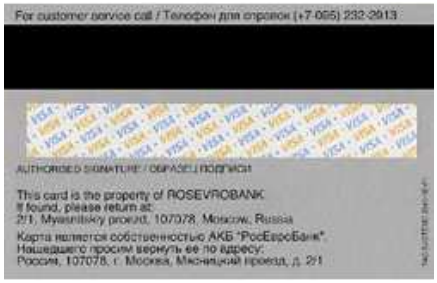
Also, on a UPC barcode the same numbers on the left-hand side (the Manufacturer Code) is coded different than the numbers on the right-hand side (Product Code). The left side numbers are actually the "inverted" or "mirrored" codes of the right side numbers, for instance what is a "bar" on the right-side, is a "space" on the left-side. The right-side codes are called "even parity" codes because there is an even number of "black bar" units. For instance the right-side "6" is "101000" - 2 even-numbered "black bar" units. The left-side is called "odd-parity" because there is an odd number of "black bar" units. For instance, the left-side "6" is "0101111" - 5 odd-numbered "black bar" units. Having different coded numbers for each side allows the barcode to be scanned in either direction.

Direct input methods.

In the second part of my report on direct input methods I am going to be talking about magnetic stripe readers.

A magnetic stripe reader, also called a magstripe reader, is a hardware device that reads the information encoded in the magnetic stripe located on the back of a plastic badge. Magnetic stripe readers can be read by a computer program through a serial port, USB connection, or keyboard wedge, and are generally categorized by the way they read a badge. For instance, insertion readers require that the badge be inserted into the reader and then pulled out. Swipe readers require that the badge pass completely through the reader.

The magnetic stripe on the back of a badge is composed of iron-based magnetic particles encased in plastic-like tape. Each magnetic particle in the stripe is a tiny bar magnet about 20-millionths of an inch long. When all the bar magnets are polarized in the same direction, the magnetic stripe is blank. Information is written on the stripe by magnetizing the tiny bars in either a north or south pole direction with a special electromagnetic writer, called an encoder. The writing process, called flux reversal, causes a change in the magnetic field that can be detected by the magnetic stripe reader. Since there can be two different flux reversals, N-N or S-S, there can be two different information states, much like the binary system used by computers. The magnetic stripe reader reads the information by detecting the changes in the magnetic field caused by the flux reversals on the badge's magnetic stripe.



Direct input methods.

In the third part of my report on direct input methods is about magnetic ink character recognition (MICR).

In computing, a technique that enables special characters printed in magnetic ink to be read and input rapidly to a computer. MICR is used extensively in banking because magnetic-ink characters are difficult to forge and are therefore ideal for marking and identifying cheques.

For the final part of my report I am going to talk about optical character recognition (OCR).

Optical Character Recognition (OCR) is a process of scanning printed pages as images on a flatbed scanner and then using OCR software to recognize the letters as ASCII text. The OCR software has tools for both acquiring the image from a scanner and recognizing the text.

OCR works best with originals or very clear copies and mono-spaced fonts like `Courier`. If you have choices, use the following source material:

- 12 point or greater font size.
- Black text on a white background.
- A clean copy; not a fuzzy multi-generation copy from a copy machine.
- Standard type font (Times, New Roman, etc.) Fancy fonts may not be recognized.
- Single column layout.

Using text from a source with font size less than 12 points or from a fuzzy copy will result in more errors.

Except for tab stops and paragraphs marks, most document formatting is lost during text scanning, (**Bold**, *Italic* & Underline are sometimes recognized).