

## Section Two: Further Reading

# Magnetic Stripes and Smart Cards

The magnetic Stripes on the back of charge cards badges offer, another means or data entry at the source. The magnetic stripes are encoded with data appropriate specific applications. For example your account number and personal identification number are encoded on a card for automatic teller machines.

Magnetic stripes contain much more data per unit of space than do printed characters or bar codes. Plus, because they cannot be read visually, they are perfect for storing confidential data, such as a personal identification number. Employee cards and security badges often contain authorization data for access to physically secured areas, such as a computer center. To gain access, an employee inserts a card or badge into a **badge reader**. This device read and checks the authorization code before permitting the individual to enter a secured area. When badge readers are linked to a central computer, that computer can maintain a chronological log of people entering or leaving secured areas.

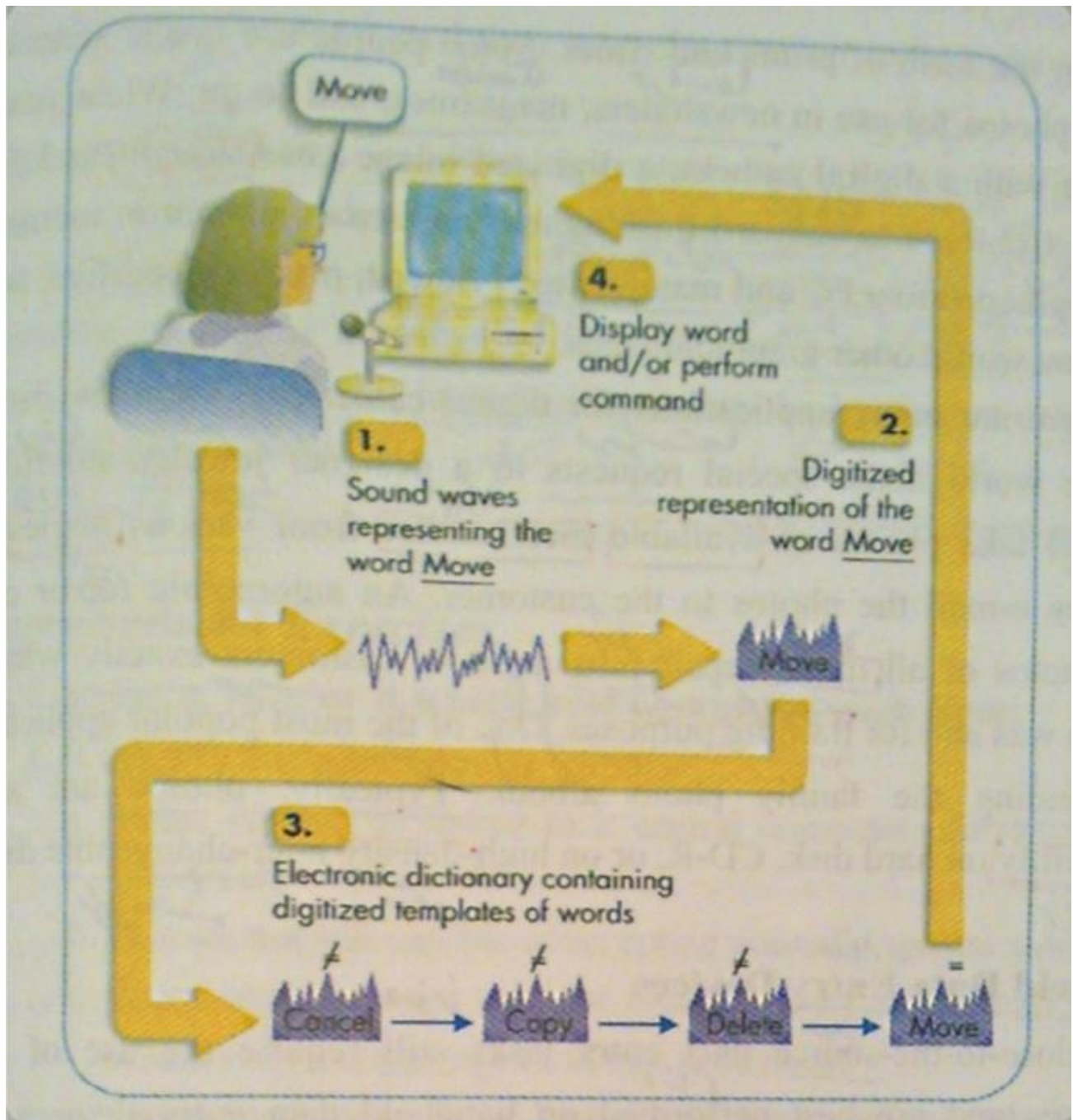
The **smart card** looks like any garden-variety charge card, but with a twist. It has an embedded, microprocessor with up to 32 KB of nonvolatile memory. The dual function stored-value smart card serves as a credit card and as a replacement for cash. Customers with these cards can go to automatic teller machines to transfer electronic cash from their checking or saving account to the card`s memory. They are used like cash at the growing number of stores that accept stored-value cards. Each time the card reload the card with more electronic cash the card`s owner must return to an automatic teller machine. The stored-value smart card is another big step toward the inevitable elimination of cash.

## **Speech Recognition: Getting on Speaking Terms With Computer**

Speech recognition has been possible for over 20 years, but only when the words were spoken in discrete speech (slowly, one word at a time) to an expensive room-sized mainframe computer. The power of PCs has finally caught up with speech-recognition technology. With the modern speech-recognition software and a microphone, the typical off-the shelf PC is able to accept spoken words in continuous speech.

## **Vision-Input System: Computer Eyes**

Some data are best entered and processed visually. However, the simulation of human specially vision, is extremely complex. A computer does not actually see and interpret an image the way a human being does. Computers need cameras for their eyesight. To create a visual database, a vision system via a camera, digitizes the images of all objects to be identified, then stores the digitized from of each image in the database. When the system is placed in operation, the camera enters each newly, seen, image into a digitizer. The system then computer the digitized image to be interpreted with the prerecorded digitized images in the computer`s database, much like a speech-recognition system does with speech input. The computer identifies the image by matching the structure of the input image with those images in the database.



## Digital Cameras: Look, No Film

Most of us take photographs in the traditional manner with a camera and film. We drop off our rolls of film for developing, and then we enjoy the results in the form of print and slides. Some people use image scanner to digitize photos for in newsletter, magazines, and so on. When you take a picture with a digital

camera, a digitized image goes straight to 3.5-inch diskette, CD-R, or to onboard flash memory. Once on disk or in memory, it can be uploaded to a PC and manipulated (viewed, printed, modified, and so on) as you would other graphic images.

There are many applications for digital cameras. Customer from the all over the world make special requests to a designer jewelry store. Store personnel take photos of available merchandise from various angles and then they e-mail the photos to the costumer. An automobile repair center takes photos of all major repair jobs to show costumers exactly what the problem was and for training purposes. One of the most popular applications is expanding the family album photos. Typically, photos are stored permanently on hard disk, CD-R, or on high-density inter-changeable disk.

## **Handheld Data Entry Devices**

Some close-to-the-source data. Entry tasks still require the use of some keystrokes and are best performed on handheld data entry devices. The typical handheld data entry device, which is actually a small computer, has the following:

- A limited external keyboard or a soft keyboard (displayed on a touch-sensitive screen)
- A small display that may be touch sensitive
- Some kind of storage capability for the data, usually solid-state nonvolatile flash memory
- A scanning device, capable of optical character recognition

After the data have been entered, the portable data entry device is linked with a central computer, and data are uploaded (transmitted from the data entry device to a central computer) for processing.

Stock clerks in department stores routinely use handheld devices to collect and enter reorder data. As clerks visually check the inventory level, they

identify the items that need to be restocked. They first scan the price tag (which identifies the item), and then enter the number to be ordered on the keyboard.

Handheld slate PCs and PDAs (personal digital assistants) frequently are used as data entry devices. Slate PCs have pressure sensitive writing that recognize hand-printed alphanumeric character. Also they permit the entering of graphic information. For example, police officer use slate PCs to document accidents, including recording handwritten signatures of the participants.