

工程及醫療義務工作協會



EMV

季刊

ASSOCIATION FOR
ENGINEERING &
MEDICAL
VOLUNTEER
SERVICES

11

1991.2

Association for Engineering and Medical Volunteer Services

Aims:

1. To serve the public through professional practices;
2. To arouse the concern of professionals and the public of the needs of professional service;
3. To involve professionals in volunteer services.

Scope of Activities:

1. Technical Aids Services to the Disabled (TASD)
2. Computer Aids Services for the Disabled (CASD)
3. Engineering Service
4. Medical Service
5. Occupational Therapy/ Physiotherapy Services
6. Independent Living Fund
7. Others

For more details, you are welcome to contact us at 7768569.



CASE

AUDIBLE THERMOMETER

In 1989, our Association held a 'Technical and Computer Aids Design Competition' to encourage more local design on rehabilitation aids and arouse the public concern on the disabled. The response was satisfactory and among the entries, the panel selected the winning prizes and a few consolation prizes. The 'Audible Thermometer' was among those who won the consolation prize. The idea of the thermometer was quickly discussed by our Association and finally it was agreed that enhancement work could be done by our volunteers.

To understand the 'Audible Thermometer', the original designer, Mr. CHENG Yat-ho, was interviewed. The designer was young and he was previously an electronics student and now he was continuing his post-graduate studies.

According to Mr. CHENG, the electronic voiced thermometer is simply modified from an ordinary electronic thermometer. An ordinary electronic thermometer has a temperature sensor that can sense the body temperature, and a simple electronic controller which after detecting a steady body temperature, shows the body temperature on a small digital display. It is cheap and easy to operate and also quite reliable because of the mass production. However, since it only shows the temperature in a small digital display without any voice output, it can not be used by the visually impaired and also causes a lot of inconvenience to the aged with weak eye-sight.

It seems that if an electronic circuit can read the digital display and transform the temperature read-out into a speaking voice can solve the problem and that is how the audible thermometer works. The audible thermometer is built up by two parts: an ordinary thermometer and an electronic circuit that reads the display and speaks out the temperature.

The audible thermometer is built in an approximately 3" X 3" PCB or module. A built-in micro-controller is used and circuits are connected to an ordinary electronic thermometer and transformed its digital read-out into speaking voice through an electronic chip called speech synthesizer. Those speaking voices or speech are stored into the ROM (read only memory) beforehand through a data compression procedure.

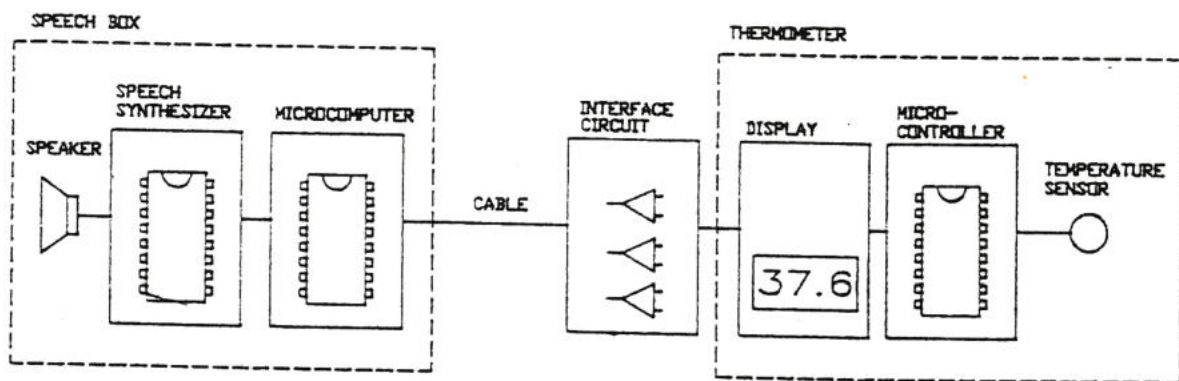
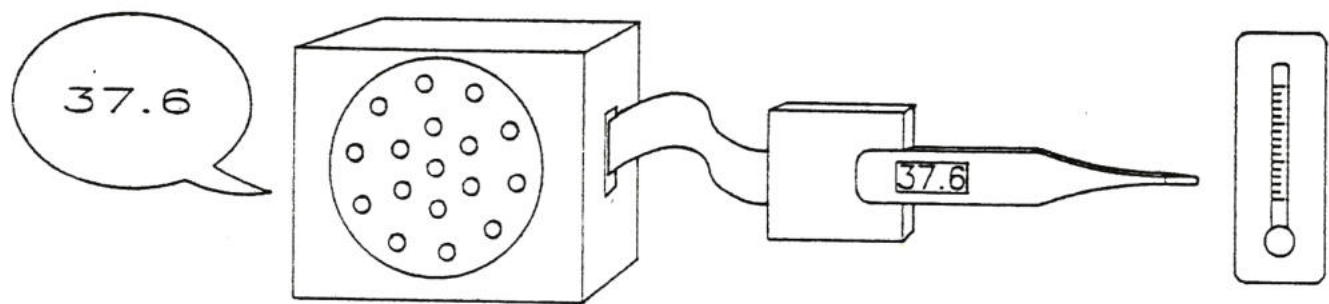
With proper modifications of the ROM program and the circuit, this technology can be used in transforming digital display or read-outs of other equipment into speaking voices, and thus making them usable to the blind people.

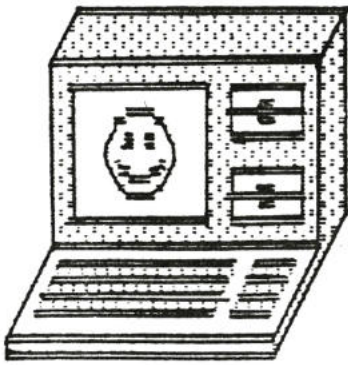
After the enhancement work, batch production would start. The 'Audible Thermometer' is considered as a useful rehabilitation aid for both the blind and the aged in finding the body temperature. Therefore, our Association hoped that the needy can be benefitted from such an aid and it also achieves our objective of serving the disabled.

Acknowledgment

We extend our thanks to Mr. CHENG Yat-ho for sharing his information with us.

Diagram of Audible Thermometer





COMPUTER LITERACY

Author: Albert TSANG

Background

Last year, CASD started the project 'Computer Literacy' which aimed at introducing computing technology to improve office administration's efficiency of rehabilitation agencies. This paper does not mean to suggest or implement any practical solutions for computerization but rather to acquaint you with the four related areas of knowledge discussed below. An understanding of the first two areas is required for computer literacy. Additional competence is gained by mastery of the last two areas.

First : Knowing computer capabilities and limitations

You should have a general understanding of the organization, capabilities, and limitations of the various machines (hardware) that make up a modern computer system. This doesn't mean, though, that you must understand how electrons zip around in computer circuits. You don't need to be an auto mechanic to operate your car, and you don't need to know the engineering details of hardware to be computer-literate. After all, you are telephone-literate without knowing the inner workings of communications circuits.

Most people know that a computer is a fast calculator,

but it's much more than that. It's also a machine that can perform such burdensome chores as choosing, copying, moving, comparing, and manipulating alphabetic, numeric, and other symbols that we all use to represent things. The computer does these things by following a set of instructions called a program. By running different programs, we can let a computer performing different functions.

The computer is one of the most powerful tools ever developed. But we've all read articles similar to the one about the man who was treated for pneumonia and then charged by the hospital's computer for the use of the delivery room and nursery. Such 'computer failures' may be amusing, but most such foul-ups happen because people fail to consider some basic computer limitations. Without reliable programs and sound logic, no computer system will perform adequately.

Second : Knowing how to use computers

You should be familiar with the common uses, or applications, of computers. You should also feel comfortable working with available prewritten instruction programs that allow you to use a computer to produce the application results you desire. Software is a term that refers to these instructions that control the operation of a computer, and prewritten software packages, like television programs, can turn a lifeless machine into something useful. With the dominance of IBM-compatible computers in the personal computer market, if you are planning to use a IBM-compatible computer, the first software you must familiar with is the operating system - DOS. Then, depends on what kind of applications you want, you may acquire different software packages. Unfortunately, those packages usually have different formats and operating procedures mainly because they are developed by different companies at different time.

Third : Knowing how computer software is developed

Although this is not essential for you in using prewritten software packages such as word processing and spreadsheet applications, having a general idea of how individuals and organizations develop custom-made programs and information systems will have great help especially if you want to hire third-party software firm to develop tailor-made programs for your agency.

No prewritten software package will 100 per cent fit into your organization. Whether your organization should adapt to the package or your organization should develop tailor-made application is always a dilemma. Before making your decision, understanding custom-made software's development may be helpful.

Custom-made programs and systems usually aren't overnight creations and of course, anything that's custom-made is likely to cost more and take longer to put into service than an off-the-shelf item. And there's also the risk of errors and an improper fit when a customized product is poorly designed. Usually, people will go through the steps of system study to develop a custom-made software. These steps include: Defining the need, system analysis, system design, program development, installation and maintenance.

Last : Understanding the computer impact

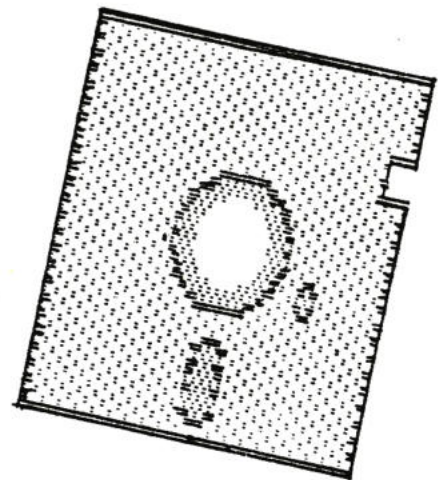
No one can doubt that computer is having a strong impact on many people. As we all know the benefits of using computers such as greater accuracy and timely information. I would like to point out two computer-related problems here.

In the absence of proper controls, knowledgeable employees (or a skilled outsider) can steal data and/or programs and sell them. They can fraudulently add, delete, or change data. People with less sinister

intentions may also seek to attack and penetrate an organization's computer system. Their motivation sometimes comes from simple curiosity and the challenge of solving a puzzle or playing a joke.

When computers are introduced, organizational stress is likely to appear. Work groups may be created, disbanded, or realigned. The people affected by such changes react in different ways. At one extreme, they may temporarily feel threatened, but after a brief adjustment period they resume their previous behaviour. At the other extreme, they may resort to open opposition and even sabotage of the system. Between these extremes, a number of other stress symptoms appear, including withholding facts, providing inaccurate data, and displaying an indifferent attitude. All these will have adverse effect on the success of computerization.

Note: Materials of this paper is mainly drawn from the book 'Computers Today' by Donald H. Sanders (McGraw-Hill Book Company, 1988).





Open Day of Jockey Club Computer Room 3.11.1990

The Royal Hong Kong Jockey Club had generously donated to our Association for the establishment of the Jockey Club Computer Room which served as a resource centre for rehabilitation workers and therapists to obtain more information on computer softwares and hardwares applying on rehabilitation. There were over 60 attendants attending our Open Day. They showed great interest to our softwares and hardwares. Some of them had also joined our Rehabilitation Software Library. The response was encouraging. Hoping that more agencies would make use of the resources of this computer room.

Change of Personnel

Mr. Harvey SHUM Man-hok, our Project Officer (Occupational Therapist), had left our Association on his own accord. Our new Project Officer, Mr. Tom LEE Koon-wang, had resumed duty on 2nd January 1991.

Wheel-chair for Sale

A Second-hand manual wheel-chair for SALE

- Adult size
- Seat width 20" (inner)
- Reclining Back-rest (to 90°)
- Adjustable Foot-rest (to 90°)

The selling price of this wheel-chair is \$1,200-1,500.
Interest parties please call the seller, Mr. Wong
directly at 7439470 for further information.



Cover designed by Miss Linda LAMP Ka-wai



個案

發聲溫度計

在一九八九年期間，本會舉辦了一個「康復儀器設計比賽」，藉以激發更多本地人士參予康復儀器的設計和喚起社會大眾對弱能人士的體恤和關注。比賽的反應令人滿意。在云云參賽作品中，評選團選出了優勝獎及數位安慰獎。其中一項安慰獎中的「發聲溫度計」由於意念特出，立刻得到協會有關小組的討論，而最後通過決定由本會義工對產品進行技術改良。

我們訪問了「發聲溫度計」的設計者鄭逸豪先生，以便對這項設計作進一步瞭解。鄭先生非常年輕，曾肄業於電子學系，現仍然正在深造階段。

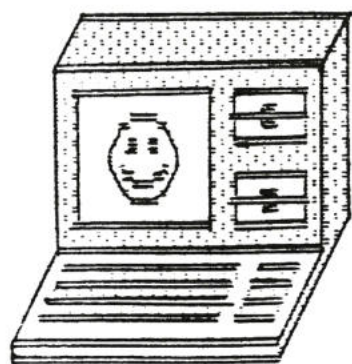
據鄭先生說，電子發聲溫度計是由普通電子溫度計改良而成。一具普通的電子溫度計內裡裝有一個溫度感應器，可以探測到人體的溫度；另外有一個電子控制器，將測到之體溫用數字顯示出來。這一類溫度計由于大量生產，所以品質相當可靠，而且價錢廉宜及易於操作。不過，這類無聲溫度計卻不能被視力不全人士所採用；而一些年老和視力衰退的人士也無法使用。

要解決上述問題，方法是在溫度計外加上一條電子線路，而由這條線路將數碼顯示轉變成為語音，這個就是「發聲溫度計」的設計意念。發聲溫度計由兩個部份所組成：一個普通溫度計和一條能夠讀出液晶數目顯示的線路。

這個發聲溫度計是以一個大約 3 吋乘 3 吋的印刷電路底板為基礎，內置一個微型控制器。將這個組件接駁到一具普通電子溫度計中，便會將溫度計的數碼顯示轉送到一個晶片狀的語音合成器中，再由這合成器將數碼翻譯成為語音，然後讀出。語音系統是事前經由壓縮過程被預先輸入到唯讀記憶晶片裡的。不同的記憶晶片和連接線路還可以應用到不同的儀器上。這樣，視力不健全的人士便可使用更多合適的輔助儀器了。

在產品改良完成以後，大量生產便可以進行。發聲溫度計這項新設計能有效地幫助失明及年老人士探知體溫。這個儀器給予有需要人士的神益，正切合本會對弱能人士提供服務的一貫宗旨。

在此，我們謹向鄭逸豪先生和我們分享他的設計表示謝意。



電腦認知

原著：曾樂文

去年，本會電腦輔助儀器製作小組開展了一個名為「電腦認知」的活動，目的在於介紹電腦科技予有關的康復機構，以改善他們辦公室行政的效率。這篇文章並不是為實施電腦化而作出任何實際建議，而是使讀者對電腦有實際的認識，後兩個部份則是針對能充份掌握電腦性能而作出陳述。

第一，認識電腦的能力及限制。

要認識一個現代化的電腦系統，應先瞭解不同電腦機件的構造、性能及限制。但這並不表示你要對電腦的電子零件的運行要十分熟悉；正如駕車人士並不一定需要瞭解汽車的內部結構方曉得操作；操作電腦的人士也不一定需要知道電腦硬件的詳細資料。

一般來說，許多人都將電腦理解為一部高效能的計算機，而事實上並非單單如此。電腦是一部能夠負起繁瑣工作的機器，例如提供選擇、複印、移位、作出比較及操縱代表事物的字母、數字和其他符號等的功能。電腦之能夠作出如此眾多的功能是源於電腦程式的運作。引用不同的程式，電腦便能夠提供不同的功能。

電腦是最偉大的發明之一。或許我們也曾聽聞一些有關電腦的笑話，即如一個患上急性肺炎的病人，在出院時竟被醫院的電腦計算出要支付包括分娩房及托兒所的費用。諸如此類的「電腦失當」可能令人發笑，但這些失當有

更大部份是由于電腦使用者未能考慮到一些電腦的限制。在未有可靠的程式和準確的邏輯編寫下，沒有一個電腦系統能夠充份發揮它的功能。

第二，認識如何使用電腦。

你或許對電腦的一般用途和操作瞭如指掌，也很滿意運用電腦得出的結果。但是電腦是怎樣運作的呢？

電腦是由軟件（或可稱為電腦程式表）指揮而操作的。例如一部電視機，只要裝配了適用的軟件或程序表，就可以播出精彩的節目。軟件就等於一項預先編寫好的計劃書，指示電腦每一個步驟的進行。

現今由于IBM廠出品的電腦和IBM兼容性電腦充塞了整個市場，因此，如果你要購買一部IBM兼容的個人電腦，首先要認識DOS軟件（即磁碟操作系統），然後隨個人需要，添置不同的應用軟件。很可惜，由于這些應用軟件在不同時間由不同廠商出產，因此他們通常具有不同格式和操作程序。

第三，認識電腦軟件是如何編寫的。

對慣于使用現成軟件的人，要瞭解個人及組織如何發展為特定需要而設計的程式似乎並沒有甚麼意義。但當你需要聘請軟件程式公司來替你的機構編寫特別裁剪的程式時，這便變得十分重要了。

通常沒有一套現成的軟件是百份之百符合用家要求的。在作出購買軟件抑或是聘請專人設計軟件這項抉擇時，假若對「度身訂造」這個意念有所認識，就不會頓時束手無策了。

當然，製造一套「度身訂造」軟件並不是一朝一夕能夠完成的事，且通常成本較昂貴，需時較長才可以正式應用，而且未必寫得很好，通常會有錯漏或設計未盡完善。

不過，製訂軟件的過程是相當嚴謹的，專家會逐步探索用戶的需要，然後經過「剪裁」，程序分析和設計，在程式編寫的過程中還包括了安裝和保養。

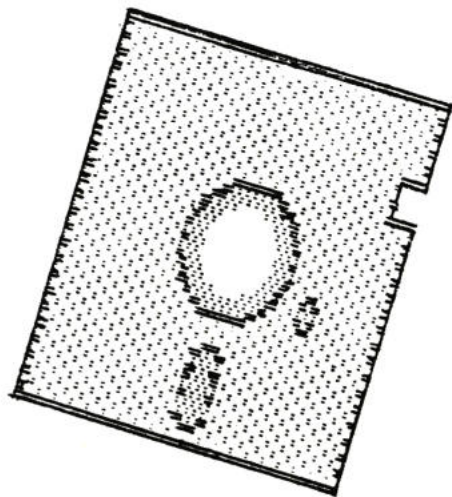
最後，明瞭電腦的影響。

電腦無疑在一般人心目中有著極重要的地位，這些人倚靠電腦去掌握準確和及時的資訊，不過我在此要提出兩項弊端。

在沒有適當管理的公司裡，有電腦知識的僱員（或者是外來的技術員）是可以隨時偷取公司的電腦資料或程式去變賣的；又或者作出欺詐性的資料增減或塗改等。有些較非惡意性的破壞行動可能是出於好奇、有趣或是存心開玩笑。

當電腦被引入一個機構的初期，通常會出現緊張。新工作小組的成立、解散或改組等帶動不同的反應。較為極端的會產生焦慮和恐懼，但通常會很快恢復過來；另一種反應是大聲反對或蓄意破壞。除此之外，其他如隱瞞資料，給予不正確資料，或表現得冷漠等。這種種當然對電腦化造成不良影響。

（本文部份內容取材自 Donald H. Sanders (McGraw - Hill Book Company, 1988) 的 ' Computers Today ')





賽馬會電腦室開放日

九〇年十一月三日

由於得到賽馬會的慷慨捐助，本會得以成立賽馬會電腦室，作為一個資源中心，使復康工作者及治療師能夠獲得適用在復康工作的電腦軟件及硬件的資料。開放日當天共有超過六十名有關的人仕到場參觀。他們對於本會從外國購買的電腦軟件及硬件深表興趣，有部份參觀者並即時加入了本會設立的「康復軟件圖書館」。開放日成績令人鼓舞。希望成立了這個電腦室後，能夠幫助更多機構發展及應用電腦于復康工作之中。

人事變動

本會之程序幹事（職業治療師）沈文鶴先生已經離職。接替程序幹事一職之李冠宏先生已於九一年一月二日正式上任。

輪椅代售

二手手動輪椅：

—成年人尺碼

—輪椅坐位內離闊二十吋

—椅背可調校至九十度

—腳踏可調校至九十度

此輪椅之售價為港幣一千二百元至一千五百元正。有意者可直接致電出售人黃先生查詢詳情。

電話：七四三九四七〇



封面設計：藍嘉惠小姐

工程及醫療義務工作協會

宗旨：

- (1) 提高社會及專業人士對專業志願服務需求的關注；
- (2) 切實為本港市民提供工程及醫療專業志願服務；
- (3) 鼓勵更多專業人士參與志願服務。

格言： 專業技能 服務人群

服務：

- (1) 弱能人士輔助儀器製作服務
- (2) 弱能人士電腦輔助儀器製作服務
- (3) 工程服務
- (4) 醫療服務
- (5) 職業治療／物理治療服務
- (6) 關懷獨居老人計劃
- (7) 展能基金
- (8) 其他

如需更多資料，請與我們聯絡：7768569

工程及醫療義務工作協會

Association for Engineering and Medical Volunteer Services

(EMV is a voluntary social service organisation

(Incorporated with limited liability under the Companies Ordinance Chapter 32)

香港九龍石硤尾邨44座207—212號

No. 207-212, Block 44, Shek Kip Mei Estate, Kowloon, Hong Kong.

Tel.: 7768569

Fax: 7881194