# 工程及醫療 義務工作協會季刊



#### Association for Engineering and Medical Volunteer Services

#### Aims:

- 1. To serve the public through professional practices;
- 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. Others

For more details, you are welcome to contact us at 3-7768569.



## A Telephone Operating Station for a Physical Disable Li Wing Ming (Volunteer of CASD, EMV)

#### Introduction

Recently CASD has finished making a Telephone Operating Station for a physical disable person. Our client is a physical handicap who have limited body mobility. He is a 19 year old young man and has limited body strength just enough to operate a light micro-switch. His family has a few tour buses and with the help of his grandmother, he has to operate a telephone line to keep contact with his clients and make schedule and arrangement for his buses, he also needs to operate a radio intercom to communicate with the bus drivers from time to time. He wants a system which allow him to do all these without any help from others. And he wants the same system to be used to operate a personal computer so he can do some word processing or accounting job.

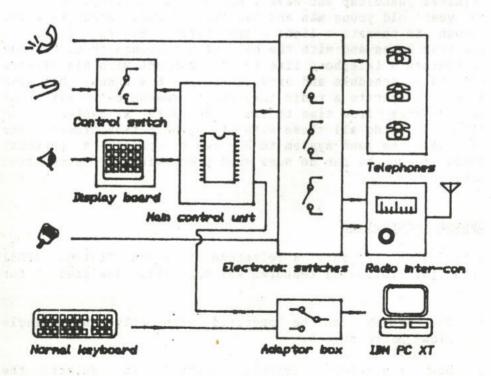
#### System Description

After some thoughts, a Telephone Operation Station (TOS) with the following features was specially designed for him:

- The system can be operated with only one single light micro switch.
- Use row/column scanning method to select the required operations.

- 3. Can operate three telephone lines at the same time.
- 4. Has 44 pre-programmed telephone numbers and can be recalled easily.
- 5. Can operate a radio intercom channel.
- Can be used as an adaptor keyboard for an IBM PC XI personal computer.
- 7. When use as an adaptor keyboard it can use either row/column scanning method or Morse Code Input method to select the keys.

The TOS is a micro-computer based system and contains a few modular blocks. A simple block diagram of the system is shown in Fig. 1



The system has a Main Control and which is a micro-computer and is the brain of the TOS. Some functional parts are around it to make the whole TOS. The scanning display keyboard has a 10 x 8 LED matrix and is use to show the user what user command has been accepted and what the system is currently doing. Three telephones are connected to the Main Control unit through some isolating electronic switches by operating these electronic switches. The Main Control Unit can make the telephones to answer a call dial a number or to hold up the phone line for a while. Some other electronic switches are also used to connect the Main Control Unit to a radio intercom station. A connection cable is used to hook the TOS up to a personal computer. When used as an adaptor keyboard for a personal computer, the TOS works exactly like a normal computer keyboard except that it can be operated with only one single switch.

#### System Operation

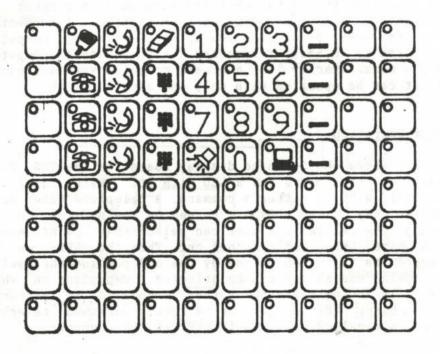
Figure 2 shows the Scanning display board for the TOS. Every square on the board has a LED with it. Each square is associated with it either a command, a telephone umber or a computer key. The LEDs are turned on row by row and by pushing the switch, the user can select that row of square which have LEDs being turned on. Then the LEDs on the selected row is turned on one by one and pushing the switch once again, one square can be selected. Depending on which square is being selected, either a command is performed (e.g. answer the phone), or a pre-programmed telephone number is recalled or a key is sent to the computer.

#### System Performance

The system was put into actual use within an hour after its first complete installation. Our client can operate the system without any difficulties. He said he can now dial any phone number with any one of the 3 telephone lines within 30 seconds. The system can do the job and can satisfy his present need. He is happy with it because it allows him to be more independent from others.

#### Future Development

The Main Control Unit is actually itself a micro-computer developed to be the brain of an Environmental control unit. Development will be carried on to add some other functional blocks around the Main Control Unit. And we hope the system can then be expanded to be a more powerful environmental control system to help the user to operate some appliances, and to select TV channels. We hope with the help of the new technology, we can help some physical disable to be more independent from others.



#### Acknowledge

We would like to thank Miss Ruth Tse for giving advice in designing the TOS and also for help in installation. Special thanks to Mr. Tsang Tit Hung for making a beautiful for the Scanning display board. We would also like to thank EMV staff for their full support on the whole project.

# Introduction to EMV Related Organization

#### The John F. Kennedy Centre

The John F. Kennedy Centre was established in 1967 with a grant provided by the United States Congress through the World Rehabilitation Fund. It was thus named in the honour of the late president of the U.S.A. The Centre is managed by the Hong Kong Red Cross and receives financial aid from the government and the Community Chest.

The Centre is a residential cum day school for physically handicapped children in Hong Kong, between the age of four and twenty. The majority of the children are affected by cerebral palsy and the rest suffered from other disabilities including cases muscular atrophy, post polio-myelitis, arthrogryposis and spina bifida.

At present there are 140 pupils in the Centre (73 residential and 67 day pupils) studying in different classes including 2-year preparatory class, 9-year general education (i.e. 6-year primary and 3 year secondary education) and since 1982 senior secondary education up to F.5 level is also provided. An advance method of teaching called Conductive Education is employed by the Centre. Conductive Education is a combined educational-therapeutic approach implemented in groups. It hoped to train the children to be functional and independent and to increase their motivation. Physiotherapy, occupational therapy and speech therapy are scheduled into the school curriculum.

With a view to its therapeutical and rehabilitating characteristics, EMV can make its contribution to the Centre. As a matter of fact, EMV helps in different ways to facilitate the Centre's treatment to the children by designing new device and adapting engineering parts. For example, an adaptation of input device for electronic robot and wheelchair helps students with poor hand function; an auditory trainer helps pupils with hearing impairment to practice hearing function.

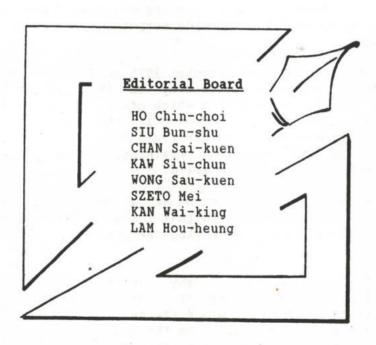
One obvious contribution of EMV to the Centre is in the field of computer. With the introduction of new computer programme, new device and hardware, computer is used as a communication aid, a therapeutic device and even as a mean of employment for the children in the Centre. For example, by the use if home made adaptive switched and a scanning device, micro-computers are used by nonverbral children to communicate not only with teachers but also with peers and hence their learning spirit is highly motivated.

Also with the effort of one of EMV's volunteer as mentioned in the passage of 'That's the Case', student who cannot write because of his non-functional hand caused by muscular dystrophy now finds access to the computer. By movement of his right wrist and dorsi-flexion of left foot, he can "write" sentences in Chinese, prepare messages, notes and even answer telephone calls ..... Adaptations are also designed by EMV on demand basis to meet individual needs and thus make the computer accessible to even the most severely handicapped pupils who may make use of the monitor display, written print out or synthetic speech output to communicate with others.

However, as Ms. Ruth Tse, the occupational therapist of the Centre pointed out that there is still not sufficient services for these disabled children especially in the field of after-school follow up service. Most of their graduates face the problem of unemployment, career choices and adaptation. It is hoped that with sufficient financial support and increasing manpower, the situation will be improved.

In view of the growing application of computer technology to the physically handicapped pupils, EMV is happy to see that the handicapped youth is benefited from our services. We are sure that we will contribute as much as we can.

The publication team would like to take this opportunity to thank Ms. Ruth Tse, the occupational therapist of John F. Kennedy Centre for her generous help and support in this interview.



# Our Service - GASD

#### Computer Aids Services for the Disabled (CASD)

'Computer Aids for the Disabled' (CASD) is a voluntary professional service provided by the Association for Engineering and Medical Volunteer Services (EMV).

When the Association started to provide 'Technical Aids Services to the Disabled' in April 1984, there were a substantial number of request for the design and fabrication of both computer hardware and software for rehabilitation purposes. Hence, a question emerged: should EMV organise another main service to provide computer aid service for the disabled?

During the period from December 1985 to January 1986, the Association conducted a survey on the application of computer in various agencies which offered services for the disabled. The result showed that the majority of the agencies agreed that computer could help to improve their services in the education, training, social aspect and employment etc. for the disabled.

Many overseas examples such as at U.K.., U.S.A. and Australia have demonstrated that computer that computer is indeed a useful aid in improving the quality of life of the disabled.

Meanwhile, there were many enthusiastic voluntary professionals from fields of computer, engineering and rehabilitation who recognised the need to develop and give their sup[port for this. On the 8th August, 1986, the 'Computer Aids Services for the Disabled' (CASD) was established in EMV.

The main service area of CASD are :

- to design, modify, develop and install computer aids for the disabled (when a suitable product or service is not available);
- 2) to promote, co-ordinate and facilitate computer aids services for welfare agencies serving the disabled;
- to promote and co-ordinate volunteer professional for the above provisions.

As for the structure of CASD, there are three main parts :

- 1) Technical Service Committee (TSC) to deal with the technical part of the request.
- 2) TASD & CASD Service Management Committee it is responsible for the formulation of all internal policy of both CASD and TASD as well as to evaluate these services.

However, due to inadequate software/hardware, insufficient technical support, lack of knowledge and funds, computer aids services are not yet widely applied in rehabilitation field in Hong Kong. Nevertheless, the enthusiastic professional volunteers of CASD are working very hard to improve this service though the available resources and funding are limited.

Recently they are fully occupied with the planning of the operation of the Rehabilitation Software Library Project which will serve as a data bank of software collected from various agencies in rehabilitation field. This Library will promote the use of software in the rehabilitation field. Information and consultation about the application of the software will be provided to needy individuals and/or organizations.

Regarding the future development of CASD, your professional and financial support are greatly needed. If you are interested to know more about this services, please contact the Association.

#### **New Volunteers**

From May, 1988 to May, 1989, there were 33 new volunteers joined EMV to serve the community with their expertise. They are:

7	Engineers	1	Medical Officer
1	Lecturer	1	Nurse
1	Speech Therapists	1	Computer Operator
3	Physiotherapists	17	Students
1	Occupational Therapist	-	5 5 4 4 5 11 5 5

If you would like to join us, please call us at 3-7768569.

#### Computer for Sale

#### A Second-hand Computer - Apple II for SALE

A set of Apple II Computer with:

2 Disk Drives a 16K Ram Card
1 Chinese Card a 80 Column Card
1 Disk Controller Card a Green Monitor
20 disks of Chinese Input Programmes, etc.
1 Scanning Keyboard with Jokstick

The selling price of this set of computer is \$1,200 (price negotiable). Interest parties please call at 3-7768569 for further information.

# Special Event -

# flag Day

# 16th September, 1989 (Saturday)

#### Flag Day - 16th September, 1989 (Saturday)

We need **Volunteers** to help in our **Flag Day** as flag sellers, depot supervisors at bank and preparation assistants for preparation work, etc. If you have any resource such as potential donor list or you can help us in recruiting flag sellers and so on, please call us at 3-7768569.

Your SUPPORT is Our SUCCESS!!

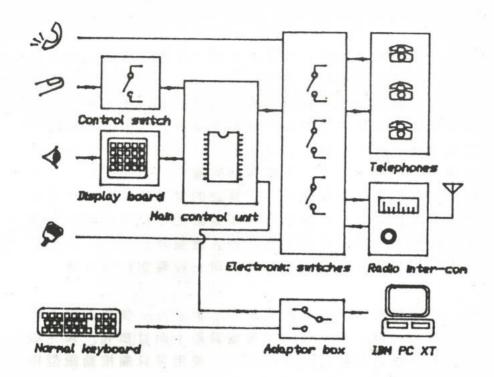
# 個案

#### 一個為傷殘人士設計的電話操作台

設計者: 李永明

#### 背景

電話操作台是一個微型電腦系統,圖一所示是組成系統的各個單元組合。



#### 系統介紹

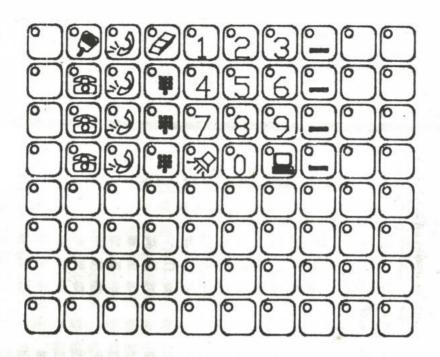
經過一些深入的研究後,設計者便製作了這電話操作台, 其特點包括以下各點:

- 1. 儀器由一個微型按掣操縱
- 2.以横行/直行跳動的選擇方法來揀選需要的動作
- 3.可以同時控制3個電話
- 4.可輸入44個電話號碼資料
- 5.可控制一無線電對講機
- 6.可用以作為私人電腦的輸入鍵盤
- 7. 當用作為私人電腦的輸入鍵盤時,可用橫行/直行跳動選擇或摩斯密碼來選擇鍵鈕

圖二所示是電話操作台的跳動顯示板。每一個四方格子都代表一個命令、電話號碼或電腦鍵鈕;而且都有一顆亮燈,這些亮燈是以橫行的次序閃亮,使用者只需按動微型按掣便可使某一橫行的亮燈亮着,之後在選定的橫行上亮燈便會依次閃亮。使用者只需要再按動一下微型按掣便可選擇到所需的四方格子位置上;主控機組便會按照四方格子上的內容發出一個命令,撥出一個預先輸入了的電話號碼或驅動一電腦鍵鈕。

#### 系統操作表現

這系統在使用者家中安裝後一小時便投入了服務,使用者對於控制這系統沒有很大的困難。他現在能在30秒鐘內在三條電話線其中一條撥出任何一個預先輸入了的電話號碼。系統証明能滿足使用者的要求,現在他可更獨立地安排他家庭的旅遊巴士生意。

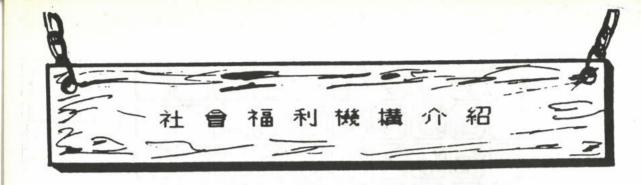


#### 將來發展

對於將來的發展,設計者認為既然主控機組是一個微型電腦,便可更充分利用作其他用途上:如控制電視或其他家庭電器;最終更可發展成為家居集中控制台,以使身體缺陷的人士能較獨立地生活。

#### 鳴謝

設計者特別要感謝職業治療員謝小姐給予這系統設計上的意見,以及為跳動顯示板做了一個精美外殼的曾先生,當然也感謝協會的工作人員對這個案的支持和幫助。



#### 甘迺迪中心

甘迺迪中心創辦於1967年,建築費主要來自美國世界復康基金的捐款,因此取名自己故美國總統約翰甘迺迪,以之紀念。中心由香港紅十字會管理並獲政府津貼及公益金資助。

甘迺迪中心是一所專為4至20歲身體弱能兒童而設的特殊學校,它同時提供寄宿及走讀學位。中心大部份學生患有腦麻痺症,其餘的有小兒麻痺後遺症、肌肉萎縮症、風濕關節炎症和脆骨症等。

目前甘迺迪中心有學生140人,其中73人為寄宿生,67人為走讀生。他們就讀不同級別,計有2年的學前訓練,9年的通才教育(即6年小學及3年中學自1982年起的高中課程並已達到中學會考程度。中心見到中學會考程度。中心學學方法,名為「引導式教育」,主要以外的獨立作的教學方法,為實際工作的獨立能力及加強他們的學習動機。中心學童既是弱能,治療復康程序便至為重要;不論物理治療、職業治療或語言治療都兼併入學童的課堂內。

甘迺迪中心負有治療及復康工作,大大切合EMV的工作目標,更可在科技及工程技術的支援上作出貢獻。事實上,EMV曾多次設計新裝置及改裝機器來輔助中心的康復治療工作。例如透過改裝控制器,手部困難的學生也能操作機械和電動輪椅;而聽覺受損的學生可使用聽覺訓練機來訓練聽覺功能。

然而,如該中心職業治療師謝淑娟小姐所說中心仍有 待發展,特別是對離校畢業生的跟進服務方面,仍有待改善。該校很多畢業生離校後都面對找工作,選擇職業及適 應上的困難而學校苦於人手有限未能跟進。希望在不久將 來,中心在這方面能得到改善。

在此出版小組謹在此多謝甘迺迪中心職業治療師謝淑娟小姐的幫忙及接受訪問。

#### 「弱能人士電腦輔助機器製作服務」

「弱能人士電腦輔助儀器製作服務」是本會提供的一項主要服務。此項服務的成立,是由於本會察覺到「弱能人士輔助儀器製作服務」的申請個案中,在應用電腦方面的需求日漸增多,有見及此,本會遂考慮增設一項電腦服務,而服務對象仍會是以弱能人士為主。

在一九八五年十二月至八六年一月期間,本會對一些為弱能人士提供服務的機構,進行了一項問卷調查,搜集他們運用電腦的情況。調查結果顯示大部份的復康機構均同意在為弱能人士提供教育、訓練、社交及就業等服務中,電腦的應用,對改進服務的質素,是有一定的幫助。

有鑑於很多先進的國家,在利用電腦去協助弱能人士改善他們的生活質素,均有顯著的成效。故本會在一群從事電腦、工程及復康工作的熱心義工的支持及協助下,終於在一九八六年八月七日,正式成立了「弱能人士電腦輔助儀器製作服務」。

這項製作服務主要是為弱能人士設計、製作、改良及 安裝電腦輔助儀器,此外亦會推廣及協助福利機構去利用 電腦輔助儀器,同時更會推廣及鼓勵專業人士參與這項服 務。

為方便統籌及推行工作, 這項服務之下更成立了兩個 委員會:

- (一)技術服務委員會一一負責製作軟/硬件。
  - (二)管理委員會一一負責制訂有關的政策及評估現有的服務。

由於缺乏適合的軟/硬件,再加上不足夠的技術支援,有關電腦化的知識及基金,故電腦輔助儀器服務在本港的復康界仍未被普遍應用。

雖然在發展這項服務時,面對種種的困難,但一群熱心的義工仍能利用現存有限的資源,去改進服務的質素。最近他們正忙於籌辦「軟件圖書館」,這個計劃旨在收集及儲存有關的軟件資料,以供各復康機構參考及使用,這項服務對於日後製作電腦軟件及各機構交流應用電腦的心得,有很大的幫助。

謹此希望各位有志於此服務的人士,對這項服務給予 各方面的支持;凡有興趣者,請與本會聯絡。

#### 編輯委員會

何識陳仇黃司簡林展品世小秀徒惠巧才樞娟珍娟美麗香

如此呼天搶地的嚎哭,是她有生以來的第一次,也許 是最後一次;世上除了那行刑前獲得特赦的死囚、和那受 折磨多年後獲得釋放的奴隸外,有誰可以比她哭得更悽慘 呢?

· 夜已深,她漸漸回復知覺,才感到身體的疲弱無力, 她躺在床上,閉上眼睛,像死人般動彈不得。

明天便是孩子下葬深圳永遠墳場的日子,她記起不久前向菩薩暗笛許下的一個願:若明兒一死,必定為他找處永遠墳地,好讓他安息……想到這裡,她不期然打了個寒噤;死寂的夜,畢竟是良心向人偷襲,蹂躪的好機會。

她的腦袋,給套上金鋼圈似的,隨着心臟一上一下的跳動,越箍越緊,她無法逃避閃過腦海的連串思潮……。

她再不能安靜地躺着,於是爬起來,跑到飯廳,狠狠 地灌下兩杯水,希望可以沖走梗塞體內十四年的痛苦,攆 走良心窮追猛打的無情控訴。

她放下水杯,正想轉身返回房間之際,視線突然像觸電般碰到牆上照片中的那雙眼睛,那雙呆滯,飄浮卻親切的眼睛;此刻,經微微幌動的燭光照亮下,竟變得如此這雙刺破人心的眼睛。他…在死盯着她,像在質問,在控訴,在追討;她…終於不支倒地,像賭債纏身,伏地求饒;喘息了片刻,才慢慢抬起頭來望着照片下安放生菓和蠟燭的本抬抬腳,她苦苦思索,要找尋任何可以充塞這令人够問空間,迷亂中,她胡扯到那很遙遠的當初,她的聲音沙啞而顫動。

『你三歲才學會走路,走起來老是跌跌撞撞的搖擺不定;不過,誰初學行不需經這不穩定的階段,我和你爸都相信,你長大些,一切都會回復正常的。

我們就是不相信這名醫生的診斷,我們決定要努力到底,要見到你完全康復的一天,因為你是我們的兒子。

你也許不會忘記那段日子:早上背着你到灣仔診所,接受治療,下午回家打理家務,晚飯後,帶你到公園的小山丘上散步,乘凉,練走路,學平衡,我和你爸都是風雨不改的保持着這習慣,因為你是我們的兒子。』

她停下來,戰戰競地仰望着牆上的他,發現那雙她剛才不敢正視的眼睛,竟軟化下來,變得深邃,抑鬱,且慢慢的轉動,像隱藏着千言萬語,要回應,要傾訴。她卻急不及待,繼續她要說的話。

『一個七月的兩天,我懷着六個月的身孕,如常背着你到灣仔診所接受治療,一個不留神差點滑倒在診所門前的石階上,幸好途人及時從後面給我們擦扶,否則後果堪虞。在護士們誠懇勸告下,我暫時停止了帶你到診所去。

你也許會怪責我和你爸將恆兒帶進世界,怨恨我們將 部份注意力、愛心、時間和希望轉延到恆兒身上。但…… 親眼看着你從獨立走路,轉為用手扙,最後坐在輪椅上, 我們怎能不灰心、失望,心靈受盡的煎敖,你可體會?希 望幻滅的心情,你會瞭解多深?』

她的聲音雖然沙啞,卻不再帶着半點猶豫,她有力地 繼續申訴着,每一句話像射出的子彈,不能收回。

『小敏出生後,恆兒開始入學,他比其他孩子早熟、獨立、沉默。而你也不再是那垂手可抱起的小孩子,輪椅和手推車幫了我不少。

生活於我是日復日、年復年的打理家務,接送你往返特殊學校,服侍你起居飲食,然後定期去診所,到醫院,見醫生、護士,見物理治療員,職業治療員,見心理學家,社會工作者。得來的是一大堆的指示,一套套的理論,和不着邊際的同情和安慰;回到家中,仍然是面對着你,一個坐在輸椅上,任由口凝流着,漸漸失去反應的孩子。整個世界就祗騰下我和你爸去面對這個我們曾極力否定的事實。我們已極度疲憊,卻不敢將這續臨崩潰的倦容展露人前。』

此時,她的聲線令人悚然,她的眼睛像受驚的小鹿, 幌動不定。

『你祖母曾不止一次在你面前哭着提醒我要好好待你;住在廣州的姑母,更兩度催促我把你送到廣州接受針灸治療,他們卻不知道,你的手腳已僵硬得連穿衣服都困難,抱你上落浴缸都令我們十分吃力。你大小便失禁,甚至吞嚥也開始出現問題。就是診所的治療員都不贊成我在毫無把握的情況下把你送去接受治療,況且我實在不能撤下你爸和弟妹在港無人照顧,我不願小敏變成像恆兒一樣獨立、一樣冷漠。』

不知不覺的,時間給倒數至今年農曆年初,她突然停止說話,像被甚麼擊中似的,莫非歷史就此終結?

她如夢初醒的再次注視着他,他的眼神是何等的無奈,眉字間甚至泛起一條不是這年紀應有的皺紋,他的下顎、不再如慣常的下垂着,兩片嘴唇緊緊的合着,且微微在顫抖,沉默又再次被她搶先打破,像氣絕前的人吐出最後的遺言。

『不……不……不可能的……』 『年初五、就是一塊年糕、就……』 『我……我怎料到……』

『明兒…不…不……不是我……不要這樣盯着我…』 此刻,她隱約聽到一股聲音。

『你一直沒有給我說話機會,正如你從來沒有給我選擇權利,硬要我欠下你們生生世世也還不清的債,媽,為何不早就給我……了結生命呢?』

歡迎各界人士投稿,在此欄裡表達心聲、發表意見、批評或抒發情感等。如有垂詢,請賜電 3-7768569與本會聯絡。

#### 新 義 工

由1988年5月至今, 共有33名新義工加入本會, 用己之所長, 參與服務, 他們包括:

工程師	7人
講師	1人
言語治療員	1人
物理治療員	3人
職業治療員	1 人
醫生	1人
護士	1人
電腦從業員	1人
學生	17人

如果你有興趣參與本會的工作/服務,請致電3-7768569 與我們聯絡!

#### 1989售旗日 (16.09.89)

1989年度的售旗籌款日將於1989年9月16 日(星期六)舉行,現正急切需求大量義工協助事前的籌備工作及售旗日當天在銀行負責收集旗袋或參予售旗活動等。希望各義工、會員踴躍參加,支持該項活動。

如有查詢或報名,請致電 3-7768569與本會聯絡。

# 電腦代售

二手電腦 (Apple I)連配件:

- a) 20隻中文磁碟
- b) 兩個磁碟機
- ()一張中文话
  - d) 3 = 16 K Ram Card
- e) 3 & 80 Column Card
  - f) -個素描鍵盤連快樂棒
  - 9) 一個 monitor

此套電腦只售港幣一千二百元正。 歡迎致電查詢 3-7768569

#### 工程及醫療義務工作協會

#### 宋 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等
- (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 珠:

- (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) 其他

如需更多資料,請與我們聯絡: 3-7768569

### 工程及醫療義務工作協會

Association for Engineering and Medical Volunteer Services

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