Elevator:

```asm
.MODEL SMALL
.STACK 5000h
.DATA
Message1 DB 'DEMONSTRATION PROGRAM FOR ELEVATOR
INTERFACE;,13,10,'$'
Message2 DB 'Press the switches on the interface and see what
happens;,13,10,'$'
Message3 DB 'This program is running...',13,10,'Press any key to
EXIT.',13,10,'$'
Delay Rate DW 04FFH
CR EQU 0c263h
PA EQU 0c260h
PB EQU 0c261h
PC EQU 0c262h
FCODE DB 00h,03h,06h,09h
FCLR DB 0E0h, 0D3h, 0B6h, 79h
.CODE ;start your coding here.
MOV AX,@DATA
MOV DS,AX
MOV AH,9h
MOV DX, OFFSET Message1
INT 21h
MOV AH,9h
MOV DX, OFFSET Message2
INT 21h
MOV AH,9h
MOV DX, OFFSET Message3
INT 21h
MOV DX,CR
MOV AL,082h

LOOP1:
MOV AL,AH
OR AL,0E0H
MOV DX,PA
OUT DX,AL
MOV DX,PB
LOOP2:
MOV CH,AH
MOV AH,01H
INT 16H
JNZ EXITP
MOV AH,CH
IN AL,DX
AND AL,0FH
CMP AL,0FH
JZ LOOP2
MOV SI,00H
FINDF: ROR AL,01H
JNC FOUND
INC SI
JMP SHORT FINDF
FOUND: MOV AL,FCODE[SI]
CMP AL,AH
JA GOUP
JB GODN
CLEAR:MOV AL,FCLR[SI]
MOV DX,PA
OUT DX,AL
JMP SHORT LOOP1
GOUP:CALL DELAY

INC AH
XCHG AL,AH
OR AL,0E0H
MOV DX,PA
OUT DX,AL
AND AL,0FH
XCHG AH,AL
CMP AL,AH
JNZ GOUP
JMP SHORT CLEAR
GODN:CALL DELAY
DEC AH
XCHG AH,AL
OR AL,0E0H
MOV DX,PA
OUT DX,AL
AND AL,0FH
XCHG AL,AH
CMP AL,AH
JNZ GODN
JMP SHORT CLEAR
;MOV AH,4CH
;INT 21H
DELAY: PUSH CX
PUSH AX
MOV CX,0EFFFH
LOOP3 MOV AX,0AFFH
LOOP4:DEC AX
JNZ LOOP4
LOOP LOOP3

POP AX
POP CX
RET
EXITP:
MOV AH,4CH
INT 21H
END
```

Procedure:

- The PCIDIOT card is already connected to PCI slot of the PC
- Connect the FLAT cable coming out of the PCI card to the elevator interface
- Switch on the PC and Load Ubuntu Linux
- Login as Micro and password as micro
- Load the terminal window in Ubuntu Linux
- Enter a command sudo virt-manager
- When it prompt for the enter the password micro
- Load windows XP through Virtual manager
- Load the command window
- Change the directory c:\micro
- Using an dos command chkdiot identify the port address of the 8255
- Using edit command type the following program
- The program shown below will simulate the motion of the elevator.
- Execute the program using MASM/LINK command and generate the executable file (.exe) file.
- Use following command for executing the .exe file
iopm filename.exe port addresses
For example: iopm filename.exe 0xc260 0xc26
- Now enter the buttons at any floor

Traffic Light

Code:

```asm
.MODEL SMALL
.STACK 5000H
.DATA
Message1 DB 'DEMONSTRATION PROGRAM FOR TRAFFIC LIGHT
INTERFACE',13, 10,'$'
Message2 DB 'This program will change LED signals when "," key is
pressed on the keyboard.' 13, 10,'$'
Message 3 DB 'This program is running.',13,10,'Press "Enter" key to
EXIT.',13,10,'$'
CMD_PORT EQU 0c263H
PORT_A EQU 0c260H
PORT_B EQU 0c261H
PORT_C EQU 0c262H
.CODE
MOV AX,@DATA
MOV DS,AX
MOV AH,9H
MOV DX, OFFSET Message1
INT 21H
MOV AH,9H
MOV DX, OFFSET Message2
INT 21H
MOV AH,9H
MOV DX, OFFSET Message3
INT 21H
START: MOV AL, 80H
MOV DX, CMD_PORT
```

```asm
OUT DX, AL
AGAIN: MOV CX, 05H
MOV SI, OFFSET PORT
NEXTST: MOV AL, CS: [SI]
MOV DX, PORT_A
OUT DX, AL
INC SI
INC DX
MOV AL, CS: [SI]
OUT DX, AL
INC SI
INC DX
MOV AL, CS: [SI]
OUT DX, AL
INC SI
PUSH SI
PUSH CX
WSER: NOP
PUSH AX
MOV AH, 0H
INT 16H
CMP AL
JNE WSER
POP AX
POP CX
POP SI
MOV AL,CS:[SI]
MOV DX,PORT_A
OUT DX,AL
```

```asm
INC SI
INC DX
MOV AL, CS:[SI]
OUT DX, AL
INC SI
INC DX
MOV AL, CS:[SI]
OUT DX, AL
INC SI
CALL DELAY
PUSH AX
MOV AH, 0H
INT 16H

CMP AL, 00H
JNE L1
MOV AX, 4C00H
INT 21H
L1: POP AX
LOOP NEXTST
JMP AGAIN
DELAY: MOV BL, 0FH
PUSH CX
DLY5: MOV CX, 1FFFH
DLY10: NOP
LOOP DLY10
DEC BL
JNZ DLY5
POP CX
RET
```

```asm
PORTS: DB88H, 83H, 0F2H
DB 88H, 87H, 0F2H
DB 38H, 88H, 0F4H
DB 78H, 88H, 0F4H
DB 83H, 88H, 0F8H
DB 87H, 88H, 0F8H
DB 88H, 38H, 0F1H
DB 88H, 78H, 0F1H
DB 88H, 88H, 00H
DB 88H, 88H, 00H
END
```

Procedure:

- The PCIDIOT card is already connected to PCI Slot of the PC
- Connect the FLAT cable coming out of the PCI card to the traffic light
interface
Switch on the PC and Load Ubuntu Linux
- Login as Micro and password as micro
- Load the terminal window in Ubuntu Linux
- Enter a command Sudo virt-manager
- When it prompt for the enter the password micro
- Load windows XP through Virtual manager
- Load the command window
- Change the directory c:\micro
- Using an dos command chkdiot identify the port address of the 8255
- Using edit command type the following
- The Program shown below will simulate traffic movement sequence.
- The sequence is for the Indian system i.e. right hand

Videos:

Attached in google drive