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APPENDICES

Source Code for PIC 16F876A Microcontroller Programming

```
;Reading an analogue input, and displaying it on the LED
; by Nur Faizah Jaafar ,2007
; Device 16F876A
;
; Check port A, B & C
;

        LIST    P=16F876A;, F=INHX8M
        #include "p16f876a.inc"

        __CONFIG   _HS_OSC &  _CP_OFF &  _WDT_OFF &  _BODEN_ON &
_PWRTE_ON & _LVP_OFF & _DEBUG_OFF & _CPD_OFF

        CBLOCK     0x20
        counter1
        ENDC

        ORG    0x0000
        clrf    STATUS
        movlw       0x00
        movwf       PCLATH
        goto    Start


; Program start
Start
        CLRF  PORTA                 ; Initialize Port A
        CLRF  PORTB                 ; Initialize Port B
        CLRW                        ; Clear W register
        BSF    STATUS,RP0           ; Select Register Bank 1
        MOVWF       TRISB           ; Set B to all outputs
        movlw b'11111111'
        movwf TRISA                 ; set A to all inputs
        movlw 0x06
        movwf ADCON1                ; set porta to digital inputs
        BCF    STATUS,RP0
```

```
Loop
        btfss   PORTA,2
        goto    Loop2
        btfss   PORTA,1
        goto    Loop1
        btfsc   PORTA,0
        goto    T0
        goto    T0


Loop1
        btfsc   PORTA,0
        goto    T1
        goto    T1


Loop2
        btfss   PORTA,1
        goto    Loop3
        btfsc   PORTA,0
        goto    T2
        goto    T2


Loop3
        btfsc   PORTA,0
        goto    T3
        goto    T3



Loop4
        btfsc   PORTA,2
        goto    T1
        goto    T3


Loop5
        btfsc   PORTA,2
        goto    T0
        goto    T2


T0
        movlw   b'11111111'                 ; Display very hot
        movwf PORTB
        movwf PORTB
        movwf PORTB
        movwf PORTB
        movwf PORTB
        movwf PORTB
```

```
            movwf  PORTB
            movwf  PORTB
            call     delay
            btfss    PORTA,1
            goto     Loop4
            btfss    PORTA,2
            goto     T2
            goto     T0


T1          movlw          b'11111100'                ; Display hot
            movwf  PORTB
            movwf  PORTB
            movwf  PORTB
            movwf  PORTB
            movwf  PORTB
            movwf  PORTB
            movwf  PORTB
            movwf  PORTB
            call     delay
            btfsc    PORTA,1
            goto     Loop5
            btfss    PORTA,2
            goto     Loop
            goto     T1


T2          movlw  b'11110000'                ; Display room temperature
            movwf  PORTB
            movwf  PORTB
            movwf  PORTB
            movwf  PORTB
            movwf  PORTB
            movwf  PORTB
            movwf  PORTB
            movwf  PORTB
            call     delay
            btfss    PORTA,1
            goto     Loop4
            btfss    PORTA,2
            goto     T2
            goto     T0

T3          movlw  b'1100000'                ; Display cool
            movwf  PORTB
            movwf  PORTB
```

```
        movwf  PORTB
        movwf  PORTB
        movwf  PORTB
        movwf  PORTB
        movwf  PORTB
        movwf  PORTB
        call     delay
        btfsc   PORTA,1
        goto    Loop5
        btfsc   PORTA,2
        goto    Loop4
        goto    T3



delay
        movlw 0x64
        movwf counter1
dlabel
        decfsz  counter1,F
        goto    dlabel
        return


END
```