

## ภาคผนวก

### โปรแกรมการรับ – ส่ง และเข้ารหัส ในไมโครคอนโทรลเลอร์ AT89S8252

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*****
;-----[ POWER ANALYZER ]-----
*****[AT89S8252]*****

***** PROGRAM READ DATA FROM ANALOG TO DIGITAL CONVERTER *****
*****----- 6 CHANNAL AND COMPARE TO ASCII CODE -----*****
*****-----SENDING TO MICROCOMPUTER -----*****
*****----- BY SERIAL PORT (RS-232) -----*****
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***** DESIGN & CREATED BY MR.PERMSIN BUNSIRI CODE 41362419 *****
***** DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING *****
***** (ELECTRICAL ENGINEERING) FACULTY OF ENGINEERING *****
***** NARESUAN UNIVERSITY *****
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ORG      0000H
DPTR1 EQU  0400H      ;1st POINTER TO RANGE 1
DPTR2 EQU  04FCH      ;2nd POINTER TO RANGE 2
DPTR3 EQU  05F8H      ;3rd POINTER TO RANGE 3
DPTR4 EQU  06F4H      ;4th POINTER TO RANGE 4
DPTR5 EQU  07F0H      ;5th POINTER TO RANGE 5
DPTR6 EQU  08FEH      ;6th POINTER TO RANGE 6
DPTR7 EQU  09EEH      ;7th POINTER TO RANGE 7

MOV      PCON,#00H
CLR      ET1
SETB     TR1
CLR      ES
CLR      EA

TURN: MOV  TMOD,#20H      ;8 BIT_UART AUTO RELOAD
MOV      TH1,#0FBH      ;SET BUAD RATE 9600 BPS
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MOV     TL1,#0FBH
MOV     SCON,#50H
MOV     SP,#7FH      ;SET STACK POINTER
MOV     P1,#0FFH    ;SET PORT1 FOR INPUT
MOV     R6,#00H     ;SET DELAY STORAGE
MOV     R5,#00H     ;SET CHANNEL COUNT
LCALL   DELAY

AA:  MOV     DPTR,#0000H ;SET POINTER TO RAM
DATA1: MOV    R3,#0FFH  ;NUMBER OF STORAGE_DATA
LCALL   DELAY
DATAX: MOV    A,P1      ;SAMPLE INPUT
MOVX   @DPTR,A        ;MOVE DATA TO RAM
PUSH   DPH            ;MOVE H_DATA ADDRESS TO STACK
PUSH   DPL            ;MOVE L_DATA ADDRESS TO STACK
LCALL   WAIT          ;DELAY AND CHANGE CHANNEL
POP    DPL            ;MOVE L_DATA ADDRESS FROM STACK
POP    DPH            ;MOVE H_DATA ADDRESS FROM STACK
INC    DPTR           ;INCREASE POINTER TO NEXT ADDRESS
DJNZ   R3,DATAX      ;COUNT NUMBER OF DATA
;*****
;*****END_OF_STORAGE_DATA*****
;*****
LCALL   DELAY
MOV     DPTR,#0001H  ;SET STARTING ADDRESS
DATA2: MOV    R3,#0FEH ;NUMBER OF SENDING_DATA
CHECK: PUSH   DPH     ;MOVE H_DATA ADDRESS TO STACK
PUSH   DPL         ;MOVE L_DATA ADDRESS TO STACK
MOVX   A,@DPTR    ;MOVE DATA FROM RAM TO REGISTER
MOV    R0,A       ;COPY DATA TO R0
ACALL  LOOP        ;SENDING AND COMPERE TO ASCII CODE
POP    DPL         ;MOVE L_DATA ADDRESS TO STACK
POP    DPH         ;MOVE H_DATA ADDRESS TO STACK
INC    DPTR        ;INCREASE POINTER TO NEXT ADDRESS
DJNZ   R3,CHECK   ;COUNT NUMBER OF DATA
SJMP   $           ;STOP OPERATING

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*****  
;*****END_OF_SENDING_DATA*****  
*****
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;////////////////////////////////////
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*****  
;*****COMPARE_TO_ASCII_CODE*****  
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LOOP:   ACALL   ; INSERT ;READ OF DATA  
MOV     B,#00H ;SET COMPERE DATA  
MOV     R1,#43 ;SET COUNT  
START1: CJNE    A,B,COMP1 ;COMPERE DATA  
MOV     DPTR,#DPTR1 ;SET POINTER  
ACALL   VAR1  
MOV     R2,#05  
COL1:   INC     DPTR  
ACALL   INSERT  
ACALL   VAR1  
DJNZ   R2,COL1  
JMP     FINISH ;END OF SENDING DATA  
VAR1:   MOV     B,#06 ;  
MUL     AB  
MOVC   A,@A+DPTR  
ACALL   SND  
RET  
COMP1:  INC     B  
DJNZ   R1,START1  
MOV     B,#43  
MOV     R1,#43  
START2: CJNE    A,B,COMP2  
MOV     DPTR,#DPTR2  
ACALL   VAR2  
MOV     R2,#05
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COL2:    INC        DPTR
ACALL    INSERT
ACALL    VAR2
DJNZ    R2,COL2
JMP     FINISH
VAR2:    SUBB       A,#43
MOV     B,#06
MUL     AB
MOVC    A,@A+DPTR
ACALL    SND
RET
COMP2:   INC        B
DJNZ    R1,START2
MOV     B,#85
MOV     R1,#43
START3:  CJNE      A,B,COMP3
MOV     DPTR,#DPTR3
ACALL    VAR3
MOV     R2,#05
COL3:    INC        DPTR
ACALL    INSERT
ACALL    VAR3
DJNZ    R2,COL3
JMP     FINISH
VAR3:    SUBB       A,#85
MOV     B,#06
MUL     AB
MOVC    A,@A+DPTR
ACALL    SND
RET
COMP3:   INC        B
DJNZ    R1,START3
MOV     B,#127
MOV     R1,#43
START4:  CJNE      A,B,COMP4

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MOV          DPTR,#DPTR4
ACALL       VAR4
MOV          R2,#05
COL4:       INC          DPTR
ACALL       INSERT
ACALL       VAR4
DJNZ        R2,COL4
JMP         FINISH
VAR4:       SUBB         A,#127
MOV          B,#06
MUL         AB
MOVC        A,@A+DPTR
ACALL       SND
RET
COMP4:      INC          B
DJNZ        R1,START4
MOV          B,#169
MOV          R1,#43
START5:     CJNE        A,B,COMP5
MOV          DPTR,#DPTR5
ACALL       VAR5
MOV          R2,#05
COL5:       INC          DPTR
ACALL       INSERT
ACALL       VAR5
DJNZ        R2,COL5
JMP         FINISH
VAR5:       SUBB         A,#169
MOV          B,#06
MUL         AB
MOVC        A,@A+DPTR
ACALL       SND
RET
COMP5:      INC          B
DJNZ        R1,START5

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MOV      B,#211
MOV      R1,#43
START6:  CJNE      A,B,COMP6
MOV      DPTR,#DPTR6
ACALL    VAR6
MOV      R2,#05
COL6:    INC      DPTR
ACALL    INSERT
ACALL    VAR6
DJNZ     R2,COL6
JMP      FINISH
VAR6:    SUBB     A,#211
MOV      B,#06
MUL      AB
MOVC     A,@A+DPTR
ACALL    SND
RET
COMP6:   INC      B
DJNZ     R1,START6
MOV      B,#253
MOV      R1,#4
START7:  CJNE      A,B,COMP7
MOV      DPTR,#DPTR7
ACALL    VAR7
MOV      R2,#05
COL7:    INC      DPTR
ACALL    INSERT
ACALL    VAR7
DJNZ     R2,COL7
JMP      FINISH
VAR7:    SUBB     A,#253
MOV      B,#06
MUL      AB
MOVC     A,@A+DPTR
ACALL    SND

```

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                RET
COMP7:         INC             B
DJNZ          R1,START7
SJMP         $

;*****
;*****COPY_DATA*****
;*****

INSERT:      MOV             A,R0
RET
FINISH:      ACALL          DELAY
NOP
RET
SND:        MOV             SBUF,A
JNB         TI,$
CLR         TI
RET

;*****
;*****SENDING_DELAY*****
;*****

DELAY:       MOV             R5,#01H
             MOV             R7,#0FFH
DELAY_1:     MOV             R6,#0FFH
DELAY_2:     DJNZ           R6,DELAY_2
             DJNZ           R7,DELAY_1
             DJNZ           R5,DELAY_1
RET

;*****
;*****STORAGE_DELAY AND SCANNING CHANNAL *****
;*****

WAIT:       MOV             R6,#00H
             MOV             DPTR,#8003H

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MOV      A,#80H
MOVX    @DPTR,A
MOV      DPTR,#8001H
MOV      A,R5
MOVX    @DPTR,A
INC      R5
CJNE    R5,#6D,JUMP
MOV      R5,#00H
JUMP:   DJNZ   R6,$
MOV      R6,#00H
DJNZ    R6,$
MOV      R6,#00H
DJNZ    R6,$
MOV      R6,#00H
DJNZ    R6,$
MOV      R6,#00H
DJNZ    R6,$
MOV      R6,#00H
DJNZ    R6,$
MOV      R6,#00H
DJNZ    R6,$
MOV      R6,#00H
DJNZ    R6,$
MOV      R6,#00H
DJNZ    R6,$
MOV      R6,#00H
DJNZ    R6,$
MOV      R6,#00H
DJNZ    R6,$
MOV      R6,#3DH
DJNZ    R6,$
RET

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,*****DATA_TABLE*****
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,*****
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ORG      0400H
DATA:   DB      '0','.',',','0','0','0','0'
        DB      '0','.',',','0','1','9','5'
        DB      '0','.',',','0','3','9','0'

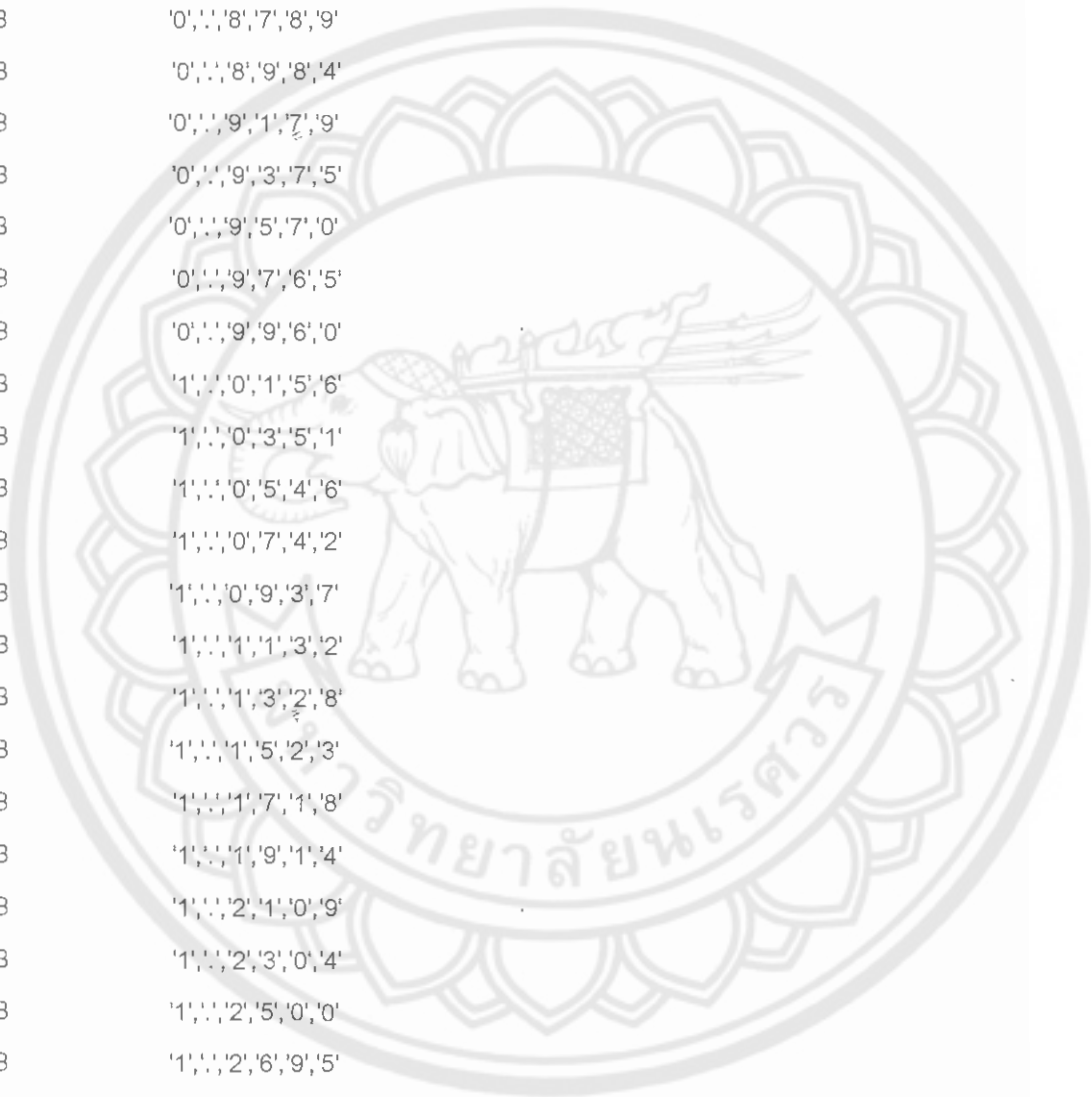
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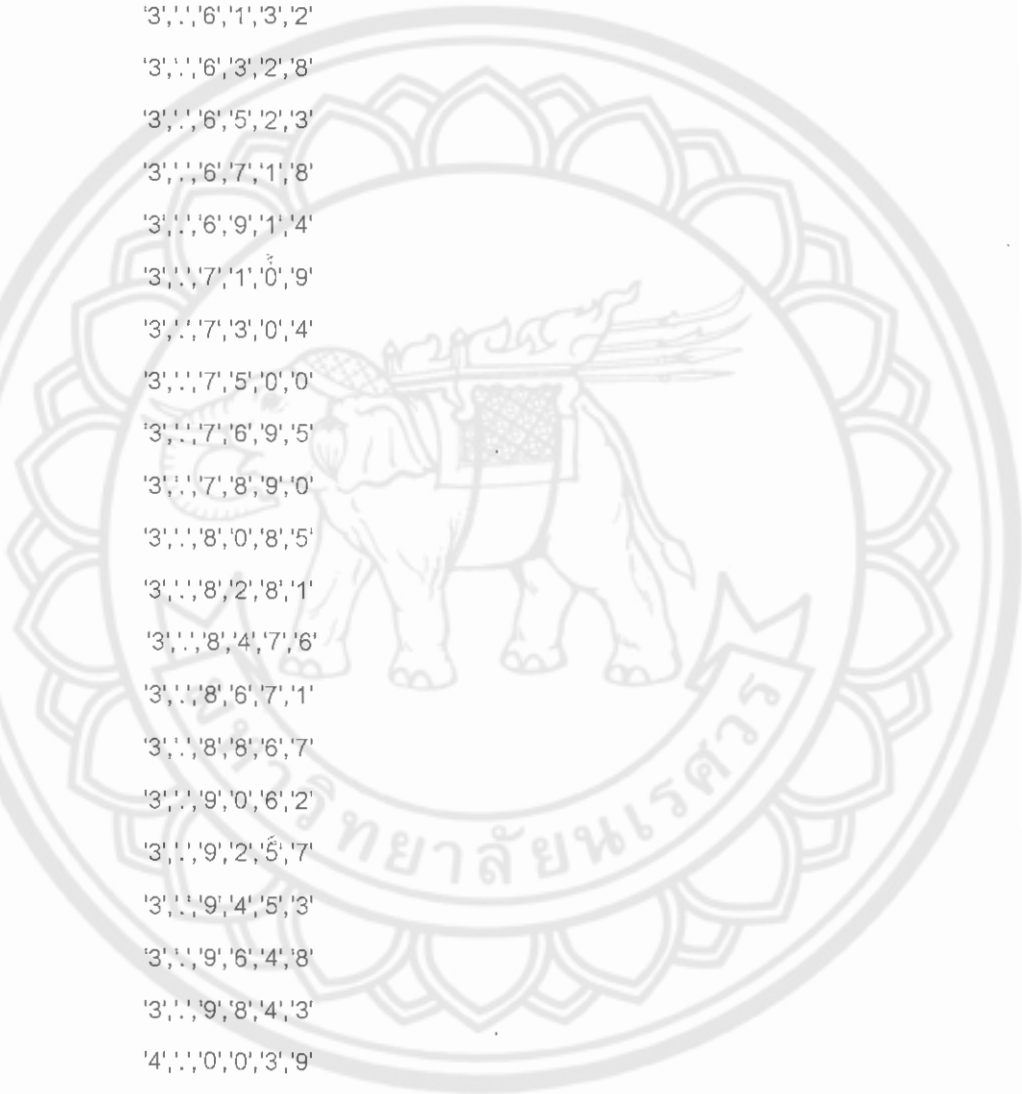


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END

