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1    ; ********************************************************************************************
2    ; **   PROGRAMME MAKED BY FADISHOP   Card: FADICLOCK        http://www.fadishop.eu  FADITECO, S.L.U.  Lleonard G. **
3    ; **   This program reads date-time, and temperature. Used to check the pin / RST of DS3232.                      **
4    ; **   By causing a power failure of the RTC, pin / RST is set to LOW.                                             **
5    ; **   SLAVE ADDRESS IS STILL DS3232 I2C $ D0.                                                                     **
6    ; **   INTERRUPT ROUTING / RST JP6 (Jumper RED) (= 0 C.0, C.1 = 1 AND NOT reset button connected to / RST (RST = 0)**
7    ; ********************************************************************************************
8    ; SETTINGS
9    #picaxe 28x2
10   let dirsB=%00000000       ; 1=output 0=input
11   let dirsC=%00000000       ; 1=output 0=input
12   ; C.3 I2C_SCL
13   ; C.4 I2C_SDA
14   ;adcsetup = %00000000   ; SETTING ANALOG
15   ;setfreq em16          ; Oscillator / external oscillator to 16Mhz.
16   device_DS3232SN:
17   symbol adress_slave_A =$D0    ; Address 0xD0 DS3232 I2C only.
18   symbol @now=$00               ; Internal adress register of seconds, minutes and hours.
19   symbol @today=$03             ; Internal adress register of day, month and year-century.
20   symbol @alm1=$07              ; Internal adress register alarm_1 (sec, min, hour and day / day).
21   symbol @alm2=$0B              ; Internal adress register alarma2 (min, hour and day / day).
22   symbol @control=$0E           ; (7)/EOSC (6)BBSQW (5)CONV (4-3)RS2-1 (2)INTCN (1)A2IE (0)A1IE
23   symbol @status=$0F            ; (7)OSF (6)BB32KHZ (5-4)CRATE (3)EN32KHZ (2)BSY (1)A2F (0)A1F
24   symbol @offset=$10            ; temperature offset. (adds / subtracts capacitance)
25   symbol @temp=$11              ; Internal word temperature address($11-MSB_temperature and $12-LSB_temperature) .
26   symbol @test=$13              ; Reserved for test.
27   symbol @sram=$14              ; Internal address of the start of the block of 236 bytes SRAM.
28   symbol control=b16            ; Register/shadow control DS3232.
29   symbol status=b18            ; Register/shadow control/status DS3232.
30   ; Program Definitions and Initialization
31   symbol seconds=b0
32   symbol minutes=b1
33   symbol hour=b2
34   symbol day=b3
35   symbol date=b4
36   symbol mounth=b5
37   symbol year=b6
38   symbol T_msb=b7
39   symbol T_lsb=b8
40
41   main:
42   i2cslave adress_slave_A, i2cslow, i2cbyte      ; I2C address of DS3232 (0xD0-0xD1).
43   readi2c @now,(seconds,minutes,hour,day)        ; Read now (seconds minutes, hour and day)
44   readi2c @today,(date,mounth,year)              ; Read today (date, mounth and year)
45   readi2c @temp,(T_msb,T_lsb)                    ; Read 2 bytes temperature
46   readi2c @control,(b17,b19)                     ; Read control registers.
47   call temperature_request                       ; Temperature request.
48   let b9=pinsC                                    ; read port_C save in b9 register(debug).
49   debug
50   pause 2000                                      ; pause 2 seconds.
51   goto main
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52
53   temperature_request:
54   i2cslave adress_slave_A, i2cslow, i2cbyte         ; DS3232 I2C Address (0xD0-0xD1)
55   readi2c @status,(b10)                             ; Read status register of DS3232.
56   let b10=b10 and %00000100                         ; Is performing a conversion (BSY = 1)?
57   if b10<>0 then return                             ; (Yes = 1) Do nothing, again.
58          else let control=control or %00100000 ; (NO = 0) temperature conversion Force CONV.
59               writei2c @control,(control)         ; Send set BSY=1 to control register
60   endif
61   return
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