Lab 9: Accessing Inputs from Slider Switch

1 Problem Statement

Write assembly program to:

1. Read a nibble from slider switch:
   (a) Configure Port 1 so as to read the input from slider switch.
   (b) Read a number N from onboard slider switches ($P1.3 - P1.0$ such that $1 \leq N \leq 16$)
   (c) Display the value on onboard LEDs
   (d) Store this nibble as last four bits of memory location 60H.
2. Pack two consecutive nibbles read from the slider to form a byte:
   (a) Read two successive 4-bit inputs from slider switches
   (b) Combine the read nibbles to form a byte (MSB being first read, followed by LSB)
   (c) Store the value in memory location 62H.
   (d) Add an immediate value to the read value.
   (e) Display both sum and carry on the LCD display.
3. Simultaneous displaying of data
   (a) Input five eight bit data through slider switch (MSB first followed by LSB)
   (b) Display them simultaneously on LCD.

2 Sequence of steps to be followed to read and store a nibble

Logic to read a 4 bit number (nibble) from onboard switches and get confirmation from user

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ReadNibble:     ; Routine to read a nibble and confirm from user

    loop:
          ;configure the port P1.0-P1.3 as input (to configure a port as input, set it) and
          turn on all 4 leds (to indicate program is ready to accept input)
          ;wait for 5 sec during which user can give input through switches
          ;turn off all LEDS
          ;save the read value in a register
          ;wait for one sec
          ;show the read value on LEDs
          ;wait for 5 sec (during this time delay, user can put all switches to OFF position to
          signal that the read value is correct and routine can proceed to next step)
          ;clear leds
          ;read the input from switches
          ;if  read value  < or > 00h go to loop
        ;otherwise return and store previously read nibble in location 60H (lower 4 bits).
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