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/*
Simple PC ATX PSU latch switch - 2025.04.22 / EH
Attiny25/45/85 wiring:
One 10K resistor from pin 8 (Vcc) to pin 1 (!Reset)
ATX purple wire 5V to Attiny pin 8 (Vcc)
ATX black wire to Attiny pin 4 (GND)
ATX green wire (PS_ON) to Attiny pin 5 (PB0)
PC power switch wires to GND and Attiny pin 3 (PB4)
*/
#define F_CPU 1E6 // CPU internal clock 1 MHz with DIV8 fuse

#include <avr/io.h>
#include <util/delay.h>

#define PS_ON_PIN PORTB0 // ATX PSU ON pin
#define PWR_SWT PORTB4 // power switch pin
#define PSU_pwr_up_delay 500 // ATX PSU power up settling time
#define antiBounceDelay 30 // power switch anti bounce delay
#define pwrSwtTurnOffTime 1500 // pwr switch press time before PSU off

uint8_t PSUon = 0; // ATX PSU state flag

int main(void) {
    DDRB &= _BV(PWR_SWT); // set the power switch pin as an input
    PORTB |= _BV(PWR_SWT); // pull up resistor on power switch input
    DDRB |= _BV(PS_ON_PIN); // set ATX PSU control pin as an output
    PORTB |= _BV(PS_ON_PIN); // set ATX PSU control pin high
    _delay_ms(PSU_pwr_up_delay); // ATX PSU start settle delay
    while (1) {
        if (PSUon == 0) { // going to turn on ATX PSU ?
            while ((PINB & _BV(PWR_SWT)) != 0);
            _delay_ms(antiBounceDelay); // anti bounce delay
            PSUon = 1;
            PORTB &= ~_BV(PS_ON_PIN);
            while ((PINB & _BV(PWR_SWT)) == 0); // wait for switch release
            _delay_ms(antiBounceDelay); // anti bounce delay
        }
        else { // PSON == 1, turn off ATX PSU only after long switch press
            while ((PINB & _BV(PWR_SWT)) != 0);
            _delay_ms(antiBounceDelay); // anti bounce delay
            int i = pwrSwtTurnOffTime/20; // test pwr switch increments
            while (((PINB & _BV(PWR_SWT)) == 0) && (i > 0)) {
                _delay_ms(20);
                i--;
            }
            if (i == 0) { // reached full pwr switch press time for PSU off ?
                PSUon = 0;
                PORTB |= _BV(PS_ON_PIN); // turn off ATX PSU
                while ((PINB & _BV(PWR_SWT)) == 0); // wait for switch release
                _delay_ms(antiBounceDelay); // anti bounce delay
            }
            else { _delay_ms(antiBounceDelay); } // anti bounce delay
        }
    }
}

```