**Lab 9 AVR Power Management**

**Circuit**

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**Code**

**#define** F\_CPU 8000000**UL**

**#include** <avr/io.h>

**#include** <avr/sleep.h>

**#include** <avr/power.h>

**#include** <avr/interrupt.h>

**#include** <util/delay.h>

***volatile*** ***int*** run **=** 0;

ISR(INT0\_vect){

**if** (run **==** 0)

        run **=** 1 ; ***// still sleep status***

**else**

        run **=** 0 ; ***// out from sleep status***

}

***void*** TIMER0\_Init(***uint8\_t*** count, ***uint8\_t*** dim) {

    TCCR0A **|=** (1 **<<** COM0B1) **|** (1 **<<** WGM01) **|** (1 **<<** WGM00);

    TCCR0B **|=** (1 **<<** CS01);

***//OCR0A = count;***

    OCR0B **=** dim;

}

***void*** INTO\_init(){

    EICRA **|=** (1 **<<** ISC01) **|** (1 **<<** ISC00);

    EIMSK **|=** (1 **<<** INT0); ***// set internal interrupt PORTD2***

}

***int*** main(***void***) {

***// set up PORTD5***

    DDRD **|=** (1 **<<** DDD5);

    PORTD **&=** **~**(1 **<<** PORTD5);

    TIMER0\_Init(255,0);

    INTO\_init();

    sei();

**while** (1){

***// led on***

**for** (***int*** i **=** 0; i **<** 255; i**++**){

            OCR0B **=** i;

            \_delay\_ms(10);

        }

***// led off***

**for** (***int*** i **=** 255; i **>=** 0; i**--**){

            OCR0B **=** i;

            \_delay\_ms(10);

        }

***// stay in sleep mode***

**if** (run **==** 0){

            set\_sleep\_mode(SLEEP\_MODE\_EXT\_STANDBY);

            sleep\_enable();

            sleep\_cpu();

            sleep\_disable();

        }

    }

}

**Result**

**Wake :**

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**Sleep :**

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