Timers as Pulse Producers

for Basics of Microprocessor technology

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6.1 The first task

Listing 1: L6_1.c

```
#include "L5_12.h"
#include "L6_1.h"

#include <avr/io.h>
#include <avr/interrupt.h>
#include <stdio.h>


void SetFrequency(unsigned long freq){
double t;
int off=0;
        BeginTimer();
        t=1/freq/resolutionOfTimer/2;
        while(1)
        if(RunnedTime()>t){
                time=0;
                PORTA^= (1 << 1);
                }
}
```

The accuracy is limited by resolution of the timer.

6.2 The second task

Listing 2: L6_2.c

```
#include "L5_12.h"
#include "L6_2.h"

#include <avr/io.h>
#include <avr/interrupt.h>
#include <stdio.h>
```

```
void SetLedPower(unsigned percent){
double t;
int off=0;
        BeginTimer();
        t=sizeof(RunnedTime())-sizeof(RunnedTime())*(double)(percent/100);
        while(1)
        if(RunnedTime()>t){
                time=0;
                PORTA^= (1 << 1);
                }
}
```

It is possible to see the pulses with frequency less than 24 Hz.