```
#define F_CPU 1000000UL

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

#define del 10
#define ped 20

int interr = 0;

ISR(PORTF_PORT_vect){
	int intflags = PORTF.INTFLAGS;
	PORTF.INTFLAGS = intflags;			//breakpoint
	interr = 1;
}

ISR(TCA0_CMP0_vect){
	TCA0_SINGLE_CTRLA = 0;
	int intflags = TCA0.SINGLE.INTFLAGS;
	TCA0.SINGLE.INTFLAGS = intflags;  //breakpoint
	interr = 0;
}

int main()
{
	while(1){
		int sensor = random() % 9 + 0;  //small road sensor

		PORTD_DIR |= PIN0_bm;    //big road traffic lights
```

```
PORTD_DIR |= PIN1_bm;     //small road traffic lights
PORTD_DIR |= PIN2_bm;             //pedestrian traffic lights
PORTD_OUTCLR |= PIN0_bm;  //on
PORTD_OUT |= PIN1_bm;     //off
PORTD_OUT |= PIN2_bm;     //off

//pullup enable and Interrupt enabled with sense on both edges
PORTF.PIN5CTRL |= PORT_PULLUPEN_bm | PORT_ISC_BOTHEDGES_gc;

sei();                //enable interrupts

//the sensor realizes that there is car on the small road
while(sensor==0 || sensor==5 || sensor==8){   //breakpoint
          PORTD.OUT |= PIN0_bm;
          PORTD_OUTCLR = PIN1_bm;
          PORTD_OUTCLR = PIN2_bm;

          sensor = random() % 9 + 0;
          }

          PORTD_OUTCLR = PIN0_bm;  //on
          PORTD_OUT |= PIN1_bm;     //off
          PORTD_OUT |= PIN2_bm;     //off


//when interr = 1, pedestrian presses switch, so it gets out of the while loop
while (interr==0){
}

PORTD.OUT = PIN0_bm;
PORTD_OUTCLR = PIN1_bm;
```

```
                PORTD_OUTCLR = PIN2_bm;

                TCA0.SINGLE.CNT = 0;
                TCA0.SINGLE.CTRLB = 0;
                TCA0.SINGLE.CMP0 = ped;
                TCA0.SINGLE.CTRLA = TCA_SINGLE_CLKSEL_DIV1024_gc;
                TCA0.SINGLE.CTRLA |= 1;
                TCA0.SINGLE.INTCTRL = TCA_SINGLE_CMP0_bm;

                while (interr==1){
                }

                PORTD.OUTCLR = PIN0_bm;
                PORTD_OUT |= PIN1_bm;
                PORTD_OUT |= PIN2_bm;

                cli();
        }
}
```