USART programming using interrupt

Part II

The objective of the next lab exercise is to improve usart_polling by including the USART0 Transmit interrupt service to service a Tx complete interrupt (see UCSR0B register).

- After the trigger of the first interrupt (by sending the first character), all the remaining characters in the string are sent by the interrupt routine
- Include a software loop before the start of the next transmission sequence of approximately 2 seconds.

(VMLAB)

An external generator is attached to pin PD0/INT0. By using this signal, trigger the transmission of the first character of the string every 150ms.

- The pulse generator, which is already attached to the INT0 pin, can generate an INT0 interrupt every 50ms. To trigger a UART transmission every 150ms we just have to wait 3 interrupts (see EICRA, EIMSK registers).
- Three leds (D1,2,3 of the control panel) are connected to PA0,PA1,PA2. Turn on sequentially the leds (D1->D2->D3->D1->…) every 50ms (INT0 interrupt). Use general I/O functions (PORTA, DDRA registers). NOTE: Leds turn on when their PAn pin is 0.

```
#include <avr\io.h>              // Most basic include files

// Define here the global static variables
//

char message[]={"The AVR-UART is fine !\n"};

ISR(SIG_INTERRUPT0) {

}

ISR(USART0_UDRE_vect) {

}

void SCI_Init(void) {

}

// ********************************************************
// Main program
//
int main(void) {


      SCI_Init();
      while(1)
      {

      };
}
```