

Lab4

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● Master

```
/*
 * main.c
 *
 * Created on: 1 May 2024
 * Author: Nouran
 */

// Master:
#include <avr/io.h>
#include <avr/delay.h>
#include "BIT_MATH.h"
#include "DIO_Interface.h"
#include "GIE_Interface.h"
#include "EX_INT_Interface.h"

void INTO_ISR();
u8 x = 0x40;

void init_SPI_master() {
    DDRB |= (1 << DDB5) | (1 << DDB7) | (1 << DDB4); // Set MOSI, SCK, SS as output
    SPCR |= (1 << SPE) | (1 << MSTR) | (1 << SPR0); // Enable SPI, Master mode, Fosc/16
}

int main()
{
    DIO_Vid_Set_Pin_Direction(Port_D, Pin2, Input);
    DIO_Vid_Set_Pin_Direction(Port_C, Pin0, Output);

    GIE_Enable();
    EX_INT0_INIT(3);
    EX_SET_INT0(&INT0_ISR);

    init_SPI_master();
}
```

```

        while(1)
        {
            _delay_ms(100); // Delay for stability
        }
    }

void INTO_ISR()
{
    if(x == 0x7A)
        x = 0x41;M
    else
        x++;

    SPDR = x;
    TOG_BIT(PORTC, 0);
}

```

● Slave

```

/*
 * main.c
 *
 * Created on: 1 May 2024
 * Author: Nouran
 */

// Slave:
#include <avr/io.h>
#include <avr/delay.h>
#include "DIO_Interface.h"
#include "LCD_Interface.h"

void init_SPI_slave() {
    DDRB |= (1 << DDB6); // Set MISO as output
    SPCR |= (1 << SPE); // Enable SPI
}

int main()
{
    LCD_Init();
    init_SPI_slave();

    //LCD_Send_String("Slave");
    LCD_Print_String("Slave");
    char data=0;

    while(1)

```

```

    {
        while (!(SPSR & (1 << SPIF)));
        data = SPDR;
//        LCD_GoTo_2nd_Line();
//        LCD_Send_Data(data);
        LCD_Move_Cursor(1,0);
        LCD_Void_Send_Data(data);
        _delay_ms(100);
    }
}

```