# Lab3



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```c
/*
 * LCD.c
 *
 * Created: 3/2/2024 9:17:58 PM
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 */
#define F_CPU 8000000UL
#include "BIT_MATH.h"
#include "STD_TYPES.h"
#include "LCD_Interface.h"
#include "DIO_INTERFACE.h"
#include  <util/delay.h>
#include <avr/interrupt.h>

void INT_EN(void);
void adc_init(void);

int main(void)
{
    DDRD &= ~(1<<2); //pD2 input
    adc_init();
    INT_EN();
    LCD_Init();
    LCD_Clear();
    _delay_ms(50);
    sei();
    while (1)
    {
          int i=0;
          for(i = 0 ; i < 10 ; i++)
          {
              if(i <= 5)
              {
                  LCD_Move_Cursor(0,i);
                  LCD_Print_String("Hello");
                  _delay_ms(1000);
                    LCD_Clear();
                _delay_ms(5);
              }
              else if(i > 5)
              {
                   LCD_Move_Cursor(0,10-i);
                  LCD_Print_String("Hello");
                  _delay_ms(1000);
                  LCD_Move_Cursor(0,i);
                  LCD_Clear();
                  _delay_ms(5);
              }
          }
```

```
    }
}

ISR(INT0_vect)
{
    char num[5];
    int adc_value;
    ADCSRA |= (1<<ADSC);
    while(ADCSRA&(1<<ADSC)); //still converting
    adc_value = ADCW;
    itoa(adc_value, num, 10);
    LCD_Clear();
    _delay_ms(250);
    LCD_Print_String("ADC = ");
    LCD_Print_String(num);
    _delay_ms(2000);
}
void adc_init(void)
{
    ADMUX |= (1<<REFS1) | (1<<REFS0); //internal ref ,enable adc 0
    ADCSRA = (1<<ADEN) | (1<<ADPS2) | (1<<ADPS1) | (1<<ADPS0) |(1<<ADIE); // en
      adc, prescalar = 128
}

void INT_EN(void)
{
    MCUCR |= (1<<ISC01); //falling edge
    GICR  |= (1<<INT0); //En int0

}
```