

# **Task 1**

## **Microcontroller**

### **Report**

#### **Group 6**

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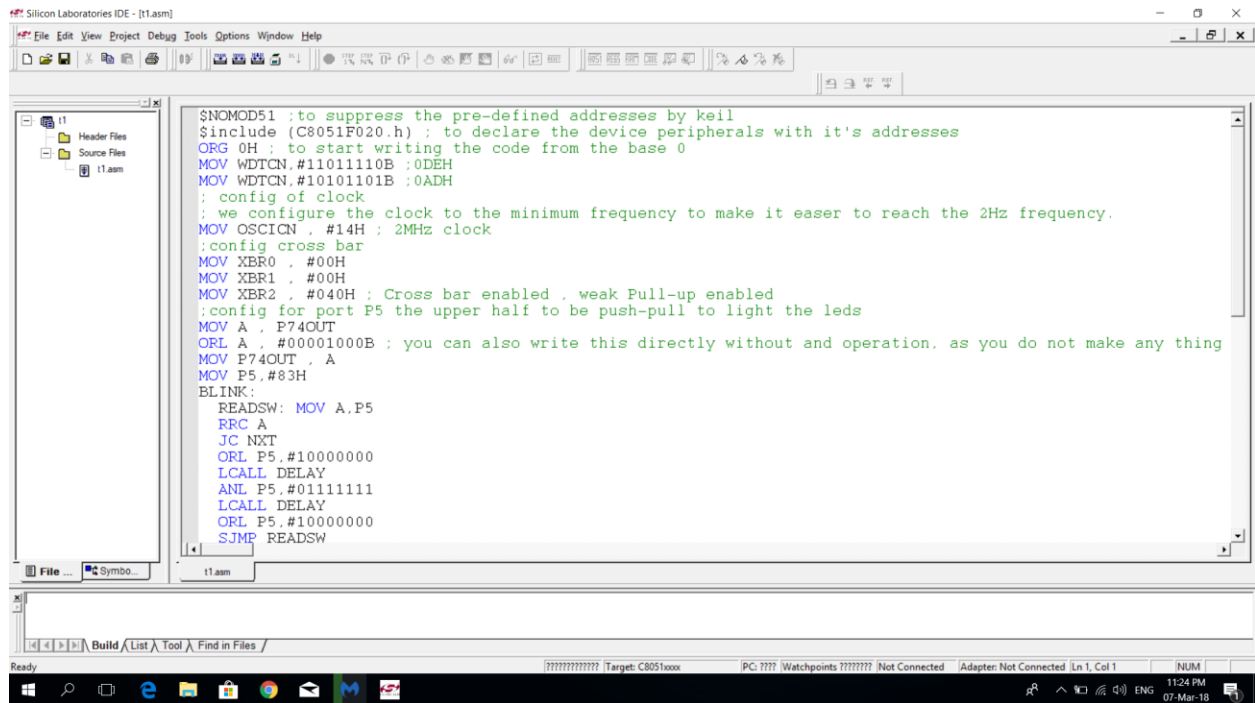
## Steps:

We start our code by open the link between the kit and keil and to declare the device peripherals with its addresses.

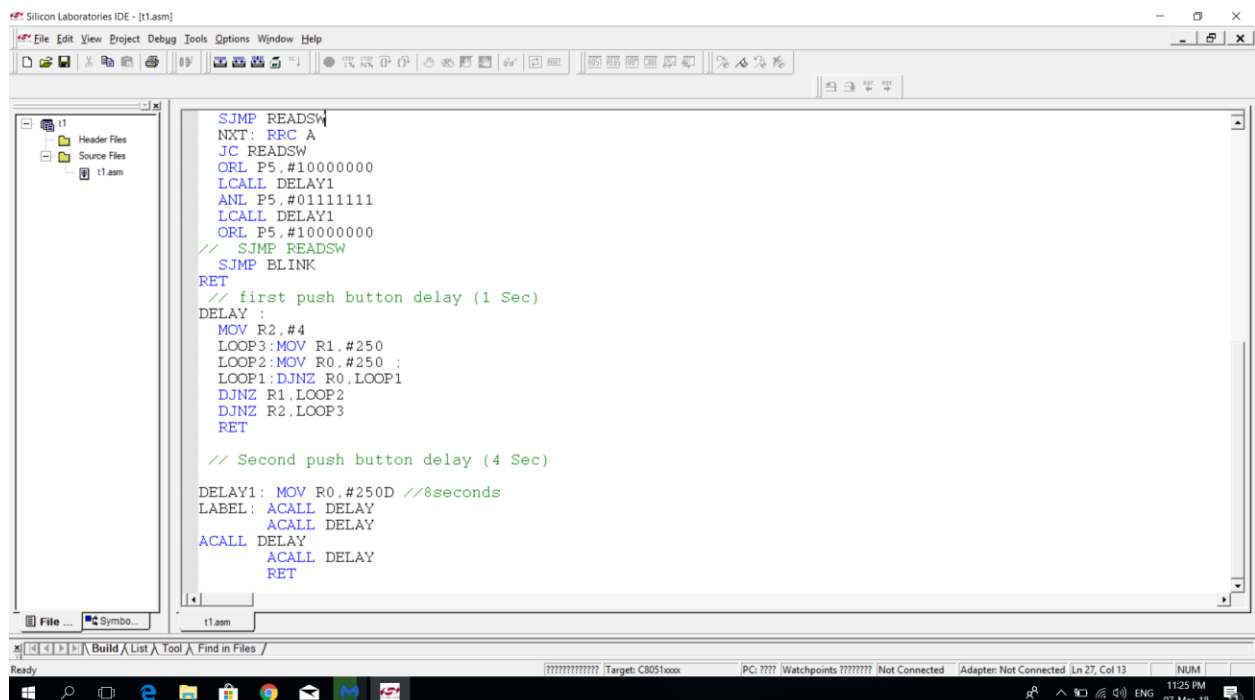
Then we restore the code and delete all the previous data to make sure that the code we write is what will be execute the disable the WDTC and configure the clock to the minimum frequency to make it easier to reach the 2Hz frequency, the cross bar and port p5.

Then take the value from the port and put it in the accumulator then choose the push button and led we will use then start our blink code by Moving the port value to Accumulator and Checking the value of Port 0 to know if switch 1 is ON or not if off the code jump to next to check switch 2 if on turn led on by delay of switch 1 if off and switch 2 on then it will turn on with switch 2 delay and so on

# Code:



```
$NOMOD51 ;to suppress the pre-defined addresses by keil
#include (C8051F020.h) ; to declare the device peripherals with it's addresses
ORG 0H ; to start writing the code from the base 0
MOV WDTCN,#11011110B ;0DEH
MOV WDTCN,#10101101B ;0ADH
; config of clock
; we configure the clock to the minimum frequency to make it easier to reach the 2MHz frequency.
MOV OSCICN , #14H ; 2MHz clock
;config cross bar
MOV XBR0 , #00H
MOV XBR1 , #00H
MOV XBR2 , #040H ; Cross bar enabled , weak Pull-up enabled
;config for port P5 the upper half to be push-pull to light the leds
MOV A , P74OUT
ORL A , #00001000B ; you can also write this directly without and operation, as you do not make any thing
MOV P74OUT , A
MOV P5 ,#83H
BLINK:
    READSW: MOV A,P5
    RRC A
    JC NXT
    ORL P5,#10000000
    LCALL DELAY
    ANL P5,#01111111
    LCALL DELAY
    ORL P5,#10000000
    SJMP READSW
NXT:
    RRC A
    JC READSW
    ORL P5,#10000000
    LCALL DELAY1
    ANL P5,#01111111
    LCALL DELAY1
    ORL P5,#10000000
    SJMP READSW
// SJMP BLINK
RET
// first push button delay (1 Sec)
DELAY :
    MOV R2,#4
    LOOP3:MOV R1,#250
    LOOP2:MOV R0,#250 ;
    LOOP1:DJNZ R0,LOOP1
    DJNZ R1,LOOP2
    DJNZ R2,LOOP3
    RET
// Second push button delay (4 Sec)
DELAY1: MOV R0,#250D //8seconds
LABEL: ACALL DELAY
        ACALL DELAY
        ACALL DELAY
        ACALL DELAY
        RET
```



```
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NXT: RRC A
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LCALL DELAY1
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// SJMP BLINK
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MOV P5,#83H

BLINK:

    READSW: MOV A,P5

    RRC A

    JC NXT

ORL P5,#10000000

LCALL DELAY

ANL P5,#01111111

LCALL DELAY

ORL P5,#10000000

SJMP READSW

NXT: RRC A

JC READSW

ORL P5,#10000000

LCALL DELAY1

ANL P5,#01111111

LCALL DELAY1

ORL P5,#10000000

SJMP READSW

SJMP BLINK

RET

// first push button delay (1 Sec)

DELAY :

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LOOP3:MOV R1,#250

LOOP2:MOV R0,#250 ;

LOOP1:DJNZ R0,LOOP1

DJNZ R1,LOOP2

DJNZ R2,LOOP3

RET

// Second push button delay (4 Sec)

DELAY1: MOV R0,#250D //4 seconds

LABEL: ACALL DELAY

ACALL DELAY

ACALL DELAY

ACALL DELAY

RET

## Flow Chart:

