# Department of Computer Engineering

# BLG 351E
# Microcomputer Laboratory
# Experiment Report

Experiment No : 5

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Group Number : 2

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# 1 INTRODUCTION

In this experiment, first, we have to toggle LED2 whenever we push P2.0 button. After this part, we have to count how many times push P2.0 button with using Port 1's LEDs

# 2 REQUIREMENTS

## 2.1 PART1

In part1,we wrote an assembly program which controls LED 2 on Port 1 using the push button 1 on Port 2. Our program toggles LED2 whenever P2.0 is pressed in an endless loop.

```
SetupP1     bis.b #11111111b,&P1DIR     ; set all leds in port 1
            clr R6                      ; use R6 for delay
LOOP        bit.b #0000001b,&P2IN       ; check button P2.0
            jnz ON                      ; if button was pressed, jump to ON
            jmp LOOP                    ; else, check the button again

ON          bit.b #0000001b,&P2IN       ; check button P2.0
            jnz ON                      ; loop while the button is still pressed
            xor.b   #0000100b,&P1OUT    ; toggle the led 2 on port 1
            mov.w #10000, R6            ; delay in order to maintain stability
TIMER       dec.w R6
            jnz TIMER
            jmp LOOP
```

## 2.2 PART2

In part 2,we wrote an assembly program that counts down how many times the push button 1 on Port 2 is pressed. Our program displays the result using the LEDs on Port 1.

```
            clr R7                      ;using R7 for counting and lighting leds
            clr R6                      ;using R6 for delay
            mov.b R7,&P1OUT             ;turn of all leds initially
LOOP        bit.b #0000001b,&P2IN       ;check button P2.0
            jnz ON                      ;jump to ON when the button is pressed
            jmp LOOP
```

```
ON      bit.b #0000001b,&P2IN   ; check button P2.0 again
        jnz ON                  ; loop until the button is released
        inc.b R7                ; increment counter
        mov.b R7,&P1OUT         ; output the counter value to leds
        mov.w #10000, R6        ; delay for ensure stability
TIMER   dec.w R6
        jnz TIMER
        jmp LOOP
```

# 3 CONCLUSION

In this experiment we learned how to create toogle loop in assembly code and we could see how many times we press button with LEDs. This experiment preposessed us a little bit. Because we have set timer to see LED ’s changing properly.