**LAB REPORT**

**Lab 07**

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21701848 - CS

SECTION 06

SPRING 2019

**Dated: 15 May, 2019**

**Program No 1:**

**#Muhammad Arham Khan**

**#21701848**

**#Section 6**

.text

**#void initspi( void)**

init\_spi:

**# SPI2CONbits.ON = 0;**

lui $t0, 0xBF80

ori $t0, $t0, 0x5A00

lw $t1, 0($t0)

andi $t1, $t1, 0x7FFF

sw $t1, 0($t0)

**#junk = SPI2BUF;**

lui $t2, 0xBF80

ori $t2, $t2, 0x5A20

lw $t3, 0($t2)

sw $t3, junk

**#SPI2BRG = 7;**

lui $t3, 0xBF80

ori $t3, $t3, 0x5A30

lui $t4, 7

sw $t4, 0($t3)

**#SPI2CONbits.MSTEN = 1;**

lw $t1, 0($t0)

ori $t1, $t1, 0x0020

sw $t1, 0($t0)

**#SPI2CONbits.CKE = 1;**

lw $t1, 0($t0)

ori $t1, $t1, 0x0100

sw $t1, 0($t0)

**#while(!SPI2CONbits.SSEN);**

while: lw $t1, 0($t0)

andi $t1, $t1, 0x0080

beq $t1, $0, while

**#SPI2CONbits.ON = 1;**

lw $t1, 0($t0)

ori $t1, $t1, 0x8000

sw $t1, 0($t0)

jr $ra

.data

**#char junk**

junk .word 4

**Program No 2:**

**#Muhammad Arham Khan**

**#21701848**

**#Section 6**

.text

**#int stop = 0;**

sw $0, stop

**#int initial = 0b01110111;**

lui $t1, 0x77

sw $t1, initial

**#int right = 1;**

li $t2, 1

sw $t2, right

**#void main(), TRISD = 0x0;**

main: lui $t3, 0xBF88

ori $t3, $t3, 0x60C6

sw $0, 0($t3)

**#TRISA = 0b111;**

lui $t3, 0xBF88

ori $t3, $t3, 0x6000

lui $t4, 0x7

sw $t4, 0($t3)

**#PORTD = initial;**

lui $t3, 0xBF88

ori $t3, $t3, 0x60D0

lw $t2, initial

sw $t2, 0($t3)

**#while(1)**

while:

**#if(PORTABits.RA1 == 0)**

lui $t3, 0xBF88

ori $t3, $t3, 0x6010

lw $t4, 0($t3)

andi $t3, $t4, 2

**#if(PORTABits.RA1 == 0)**

beq $t3, $0, ifPORTABits

j whileContinued

**# if(PORTABits.RA1 == 0)**

ifPORTABits:

**#stop = !stop;**

lw $t0, stop

nor $t0, $t0, $t0

sw $t0, stop

**#if(!stop)**

beq $t0, $0, ifNotStop1

j whileContinued

**#if(!stop)**

ifNotStop1:

**#PORTD = initial;**

lui $t3, 0xBF88

ori $t3, $t3, 0x60D0

lw $t0, initial

sw $t0, 0($t3)

j whileContinued

**#after the first if condition**

whileContinued:

**#if(!stop)**

lw $t0, stop

beq $t0, $0, ifNotStop2

**#PORTD = 0b11111111;**

lui $t3, 0xBF88

ori $t3, $t3, 0x60D0

lui $t4, 0xFF

sw $t4, 0($t3)

j delay

**#if(!stop)**

ifNotStop2:

**#lsb = PORTD & 0x1;**

lui $t3, 0xBF88

ori $t3, $t3, 0x60D0

lw $t4, 0($t3)

andi $t5, $t4, 1

sw $t5, lsb

**#mask = lsb << 7;**

sll $t6, $t5, 7

sw $t6, mask

**#PORTD = (PORTD >> 1) | mask;**

lw $t1, 0($t3)

srl $t7, $t1, 1

lw $t5, mask

or $t6, $t7, $t5

sw $t6, 0($t3)

j delay

delay:

**#delay\_ms(1000);**

li $v0, 32

li $a0, 1000

syscall

**#while(1)**

j while

.data

**#int initial, right, stop, lsb, mask**

intial: .word 4

right: .word 4

stop: .word 4

lsb: .word 4

mask: .word 4