CMPE423 Application 4 Report,

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**a)**

#define bt1 1

#define bt2 2

#define on 0

#define off 1

#define BALED PORTB.7

#define Pulse PORTB.0

#define NC 10000

void delay100ms()

{

uns16 period = 100000/8;

do{}while(--period);

}

void blink(void){

static char lcount;

if(lcount == 0)

BALED = on;

else

BALED = off;

++lcount;

if(lcount > 9)

lcount = 0;

}

void main(void)

{

//port configuration

TRISB = 0B00000010;

//TRISC = 0;

char prev = PORTB,cur = PORTB;

uns16 bcount=0;

while(1) {

//clrwdt();

blink();

prev = cur;

cur = PORTB;

if (cur.bt1 == on && prev.bt1 == off ) {

Pulse = 1;

T0CON=0b10000000;

// how maney complete 256 in 10000 and the result in the High8

// we put them in nigative because we will incerement it to 0;

// there will be an small error , not exactly -10000 the result!

// because we when nigate with 2's complement two registers seperatly

// it will be smaller not exactly 10000

TMR0H=-NC/256;

// not completed 256 in low8

TMR0L=-NC%256; TMR0IF=0;

do{}while(!TMR0IF);

Pulse=0;

}

delay100ms();

}

}

**B)**

For 10MHZ :

T0CON = 0B10000011

For 1MHZ :

T0CON = 0B10000000

For 32KHZ

T0CON = 0B10001000

**c)**

#define bt1 1

#define bt2 2

#define on 0

#define off 1

#define BALED PORTB.7

#define Pulse PORTB.0

void delay100ms()

{

T0CON=0b10000000; // set TMR0 for 0.1 sec

TMR0H=-NC/256; TMR0L=-NC%256;TMR0IF=0;

do{}while(!TMR0IF);

//uns16 period = 100000/8;

//do{}while(--period);

}

void blink(void){

static char lcount;

if(lcount == 0)

BALED = on;

else

BALED = off;

++lcount;

if(lcount > 9)

lcount = 0;

}

void main(void)

{

//port configuration

TRISB = 0B00000010;

TRISC = 0;

char prev = PORTB,cur = PORTB;

uns16 bcount=0;

while(1) {

//clrwdt();

blink();

prev = cur;

cur = PORTB;

if (cur.bt1 == on && prev.bt1 == off ) {

Pulse = 1;

// 64 class which arrise 32 error tims

// because (2.5s/1us)/2^16 = 38.xx so nearest value 64

T0CON=0b10000101; TMR0L=0;TMR0H=0; TMR0IF=0;

do{}while(PORTB.bt1==on);

uns16 nc;

nc.low8=TMR0L; nc.high8=TMR0H;

// 2.5s = 2.5\*10^-6 us, let A = 2.5\*10^-6

// A/64 because the mutible of time unit

// so to atchive 10ms time unit we have to devide it by 10000

//10000/64 = 156.x so we have to devide by 156 to go from 64 of us to 10 of ms

PORTC=nc/156;

if(TMR0IF) {

PORTC=250;

}

}

delay100ms();

}

}