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TITLE : Write an Embedded C program for Generating PWM signal for servo motor/DC motor.

CODE :

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

// Program for PWM Generation using PIC18F4520.

// PWM output : RC2

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#include<xc.h>

#include<pic18f4520.h>

#include<stdlib.h>

#include<stdio.h>

#pragma config OSC = HS //Oscillator Selection

#pragma config WDT = OFF //Disable Watchdog timer

#pragma config LVP = OFF //Disable Low Voltage Programming

#pragma config PBADEN = OFF //Disable PORTB Analog inputs

void myMsDelay (unsigned int time) // Definition of delay subroutine

{

unsigned int i, j;

for (i = 0; i < time; i++) // Loop for i time

for (j = 0; j < 275; j++); // Calibrated for a 1 ms delay in MPLAB

}

void main()

{

TRISCbits.TRISC0 = 0 ; // Set PORTC, RC6 as output (DCM IN1)

TRISCbits.TRISC1 = 0 ; // Set PORTC, RC6 as output (DCM IN2)

TRISCbits.TRISC2 = 0 ; // Set PORTC, RC2 as output (CCP1)

PR2 = 0x4E; // set PWM Frequency 4KHz

CCP1CON = 0x0C; // Configure CCP1CON as PWM mode.

T2CON = 0x07; //Start timer 2 with prescaler 1:16

PORTCbits.RC0 = 1; // Turn ON the Motor

PORTCbits.RC1 = 0;

while(1) // Endless Loop

{

// -----------------------------------

// ----------Duty Cycle 80%-----------

CCP1CONbits.DC1B0 = 0;

CCP1CONbits.DC1B1 = 1;

CCPR1L = 0x3E;

myMsDelay(2000);

// -----------------------------------

// -----------------------------------

// ----------Duty Cycle 60%-----------

CCP1CONbits.DC1B0 = 1;

CCP1CONbits.DC1B1 = 1;

CCPR1L = 0x2E;

myMsDelay(2000);

// -----------------------------------

// ----------Duty Cycle 40%-----------

CCP1CONbits.DC1B0 = 1;

CCP1CONbits.DC1B1 = 0;

CCPR1L = 0x1F;

myMsDelay(2000);

// ----------Duty Cycle 20%-----------

CCP1CONbits.DC1B0 = 0;

CCP1CONbits.DC1B1 = 1;

CCPR1L = 0x0F;

myMsDelay(2000);

}

return ;

}

OUTPUT:





