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/*****
Module
    Servo.c

*****/
/*----- Include Files -----*/
// Basic includes for a program using the Events and Services Framework
#include "ES_Configure.h"
#include "ES_Framework.h"
#include "ES_ServiceHeaders.h"

/*----- Module Defines -----*/
#define TckPerMicroS 3

/*----- Module Functions -----*/

/*----- Module Variables -----*/

static int batmin = 0;

static int batmax = 165;

/* PWM CLOCK IS SET AT /64 /8, SO IT IS 24MHz/64/8 = 46.875 kHz */
/* PWM PER = 250, ~5.33 ms */
/* Servos on 3 - Aim, 4 - Fiducial, 5 - Ball Spinning */

// 600usec = 0 degrees
// 1500usec = 90 degrees
// 2400usec = 180 degrees
void Servo_SetAngle(int num, int angle)
{
    if(num == 4)
    {
        angle = 165-angle;
        if (angle < batmin) angle = batmin;
        if (angle > batmax) angle = batmax;
        ServoPulseWidthCh1(4, 600+10*angle);
    }
}

void ServoPulseWidthCh1(int PortNum, int NewWidth)
{
    //Port Num is between 4-7
    switch(PortNum)
    {
        case 4:
            TIM1_TC4 = 0xFFFF - (NewWidth * TckPerMicroS);
            break;
    }
}

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case 5:  
    TIM1_TC5 = 0xFFFF - (NewWidth * TckPerMicroS);  
    break;  
case 6:  
    TIM1_TC6 = 0xFFFF - (NewWidth * TckPerMicroS);  
    break;  
case 7:  
    TIM1_TC7 = 0xFFFF - (NewWidth * TckPerMicroS);  
    break;
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}
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}
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