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#include "Proj_2A_header_file.h"
|

int main (void){
    unsigned int rand;                                //random number
    unsigned int PORT_1, PORT_2;

    setup_HW;
    while(switch_3_up);                                //wait for switch 3 to be pressed before starting

    PORT_1=0b0000000000000001;
    PORT_2=0b1000000000000000;

    while (1){                                         //Infinite loop that could be replaced by a "SW_reset"

        while(1){                                     //Infinite loop.
            Timer_T0_10mS_delay_x_m(1);              //The "break" statement is used to exit this loop
            while(switch_3_up);                        //halt if switch 3 is released
            rand = (PRN_16bit_GEN(0))%3 + 1;           //generate a random number (1,2 or 3)
            for (int m = 0; m < rand; m++)             //set up a loop
            {if (PORT_1 == 0b1000000000000000)         //Either reinitialise PORT_1
                PORT_1 = 0b0000000000000001;          //or
            else PORT_1 = PORT_1 << 1; }               //prepare to shift the top row of the display left
            if (PORT_2 == 0b1000000000000000)         //by 1, 2 or 3 places
                PORT_2 = 0b0000000000000001;         //prepare to shift the lower row of the
            else PORT_2 = PORT_2 << 1;                 //display left but only by one place

            I2C_Tx_2_integers(PORT_1, PORT_2);         //update the display

            if(PORT_1 == PORT_2)                       //If a single vertical line is illuminated
            {Timer_T0_10mS_delay_x_m(35);              //start a timer and pause
            if(switch_3_up)break;                      //If switch 3 has been released "break" out of the while loop
            else while(switch_3_down);}                 //else wait for it to be released

            if(PORT_1 != PORT_2)                       //If disjointed segments are illuminated
            {Timer_T0_10mS_delay_x_m(8);}}              //momentarily pause before returning
                                                    //to the top of the while loop

        while(switch_3_up){                            //flash the display until the switch is up
            I2C_Tx_2_integers(PORT_1, 0);
            Timer_T0_10mS_delay_x_m(16);
            I2C_Tx_2_integers(0, PORT_2);
            Timer_T0_10mS_delay_x_m(16);}}}              //When it is pressed again return to the outer while loop

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