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//*****
//
// Programme to perform the ramp test
// This programme will perform the following tasks:
//   - move forward
//   - turn left (twice to turn around)
//   - turn right (twice to turn around)
//   - adjust left for oversteer to right
//   - adjust right for oversteer to left
//   - recognize white floor markers - turn, adjust, stop
//
// Create KCB - Aug 10,2011
//
//*****
#include <hidef.h>          /* common defines and macros */
#include "derivative.h"     /* derivative-specific definitions */
#include "main_asm.h" /* interface to the assembly module */

void main(void) {
    int LEFT_FAST, RIGHT_FAST, TURN_COMP; // Declare flags
    int LEFT_MARK, RIGHT_MARK, COMPLETE;
    int sense_data; // Declare sensor data
    int i;
    LEFT_FAST = FALSE;
    RIGHT_FAST = FALSE;
    TURN_COMP = FALSE;
    LEFT_MARK = FALSE;
    RIGHT_MARK = FALSE;
    COMPLETE = TRUE;
    sense_data = 0x00;
    // Initial terminal message
    // printPC("Start: ");
    // Start the initialization
    initial(); // Initialize mouse I/O
    // Delay(30);
    forward(); // Start the forward motion
    Delay(20);
    stop_dead();
    // Delay(10);
    // turn_left();
    // Delay(30);
    reverse(); // Start reverse to see forward
    Delay(20);
    stop_dead();
    // Delay(10);
    // turn_right();
    // Delay(30);
    forward();
    Delay(20);
    reverse();
    Delay(20);
    forward();
    Delay(20);
    stop_dead();
    for (i=0;i<100;i++){
        // Delay(10); // Argument is no. of 10ths of second
        // sense_data = sensors();
        // adj_right();
        // Delay(30);
    }

    while (!COMPLETE) {
        sense_data = sensors(); // Read sensor data
        if (sense_data && 0x01) // Front wall sensor?

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    if (TURN_COMP) {          //Have I done the turn?
        turn_right();         // yes, turn and stop
        turn_right();
        stop_dead();          // disable motors
        COMPLETE = TRUE;
    }
    else {
        turn_left();           // no, turn and set flag
        turn_left();
        TURN_COMP = TRUE;
    }

    if (sense_data && 0x02) { // Left wall sensor?
        if (!LEFT_FAST) {
            adj_left();         // Speed up left wheel
            LEFT_FAST = TRUE;
        }
    }
    else
        if (LEFT_FAST) {
            forward();           // Reset speed
            LEFT_FAST = FALSE;
        }

    if (sense_data && 0x04) { // Right wall sensor?
        if (RIGHT_FAST) {
            adj_right();         // Speed up right wheel
            RIGHT_FAST = TRUE;
        }
    }
    else
        if (RIGHT_FAST) {
            forward();           // Reset speed
            RIGHT_FAST = FALSE;
        }
}

//      EnableInterrupts;

//  asm_main(); /* call the assembly function */

for(;;) {
    _FEED_COP(); /* feeds the dog */
} /* loop forever */
/* please make sure that you never leave main */
}

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