

Homework Exercise #1

Introduction to Interactive C

Program your HandyBoard using Interactive C to respond to the following actions while connected to your robot:

Action¹

Response

Pressing the “Start Button”

- Beep
- Robot
 - Forward for 2 sec
 - Stop for 1 sec
 - Backward for 2 Sec
 - End
- LCD
 - “Forward”
 - “Stop”
 - “Back”
 - “End”
- Beep Twice and End

Pressing “Stop Button”

- Beep
- Knob
 - Turn knob
- LCD
 - Display value of knob²
- Wait 15 sec then Beep Twice and End

Enclosed is a schematic to help get you started programming. Note that it is not complete so be sure to check-off the actions above prior to demonstrating your code!

You must demonstrate using your HandyBoard/Robot by the end of class on the due date (see homework page on website) as well as provide a softcopy (via e-mail) by midnight on that same date..

¹ Do this without having to turn the HandyBoard on and off between responses.

² You may have to add additional code in order to read the values being displayed (i.e., the **printf** statement may be executing too fast)

```
// ECE 450: Homework Exercise 1
// Team #
// Names?
```

```
void main()
{
    while(TRUE)//infinite loop
    {
        Print "Press Start or Stop" to the LCD Screen
        (Be sure that you can read the message, it only flash up in
         which case you'll need to slow it down. How?)
        Wait for the start or stop button to be pressed
        If Start Button is pressed call "START"
        If Stop Button is pressed call "STOP"
    }
}

void start() // Defines the actions of the start function
{
    Set both motors to Forward
    Print "Forward" to screen
    Wait 2 seconds
    Turn motors OFF
    Print "Stop" on LCD screen
    Wait 1 second
    Set motors to Reverse
    Print "Reverse" on screen
    Wait 2 seconds
    Turn motors OFF
    Print "END" to screen
    Return to main
} //end of start definition

void stop() // Defines the stop function
{
    Define a float variable
    Obtain the time from the CPU
    While the CPU registers less than the time started + 15 seconds
    {
        Obtain value of knob
        Print value of knob to LCD Screen
        (You may have to add more code to keep the display from blinking)
    } // Continue until time is up
    Return to Main
} //end of stop function definition
```

*Note: You will have to use the "help" routine in IC to determine what functions to use and their syntax (i.e., for timing).