Assignment 4 ENGR 121

Circuit 1: Control Star wars tunes (5 points)

You have been given the code which is available in public domain. There are two tunes/melodies from star wars series defined in the code. The program is using potentiometer to control two tunes. It has divided the analog signals into two parts for two tunes. Now, your task is to remove all the portions related to potentiometer and use TWO push buttons to control the tunes.

Design the circuit and edit the code to get it working.

Components required: Buzzer, two push buttons, jumper wires and Arduino board.

Spock sends his regards:

Circuit 2: Easy peasy! (5 points)

Remember the in-class motor speed control with buttons circuit? You have the code for this circuit. Edit the hardware hookup and code such that, instead of just one motor, it controls the direction and speed of two motors. This will quite easy to build. Take reference from the notes which are on ilearn and your previous design to connect the second motor.

Circuit 3: Tell me when its hot! (10 points)

Use the temperature sensor to calculate the ambient temperature. Make the use of DC motor and driver. Code your circuit such that when the temperature increases, LED turns ON and DC motor starts spinning. Here, motor will work as a Fan. The circuit connections will be quite tedious.

Components required:
DC motor
Temperature sensor
Motor driver
LED
Jumper wires

For coding part, you just have to combine parts of code which we discussed in our session. Use the code from temperature sensor circuit to convert and calculate the temperature. Set the threshold temperature value (example 75 degrees) and use if loop. Inside the loop will be the code for motor and LED.

Submission instructions:

Code: Your code should be authentic and original. Comment wherever it is necessary.
Please write your name and SFSU id on top of the code in comments. Academic dishonesty and plagiarism is a serious offense.

Circuit: make a short clip of working so that I can look at it.

Documentation: Please make a short notepad file documenting your understanding on both the questions. Name this file as README.txt.

Submission: All the files should be in a zip folder and submit that zip folder on ilearn.