CSE 237A Individual Project Part 2

Part 2 of 2: Sensor interaction and energy-efficient scheduler Assignment

In this part, you will implement a program which interacts with the RPi3's sensors. The RPi3 provides multiple General Purpose Input/Output (GPIO) connectors, which carry signals to/from the sensors. You will connect the sensors to the RPi3, and implement a user space program using the WiringPi library for GPIO communications. The program you will create emulates a sensor platform that reacts external sounds. Subsequently, you will use the base code on which you will implement an your energy efficient scheduler.

Complete the following steps:

1. Familiarize yourself with wiringPi: http://wiringpi.com/
2. Implement a sensor interaction program based on skeleton code available in the projects folder on class website (http://cseweb.ucsd.edu/classes/wi18/cse237A-a/project/part2/)
3. Update your sensor interaction program, which now includes latencies, to implement a LIST scheduler.
4. Implement an energy-efficient LIST scheduler for your application
    - The scheduler should manage your unique workloads available in the website (http://seelab.ucsd.edu/cse237a_wi18/)

Deliverables of Part 2:

- Complete and demo the individual project part 2 checkpoint with TA
- Submit the three files "assignment1.c", "assignment2.c", and "shared_var.h" via TED. Your code must execute correctly using the predefined wiringPI PIN numbers and the other provided files to receive ANY credit for this part of the project.
- Submit your report with the source code on TED:
    - Maximum 3pgs, 12pt Times New Roman font, excluding figures and tables
    - Briefly explain how you implemented the sensor interaction program
    - Discuss the design choices for your energy efficient scheduler
    - Provide a table for the three provided workloads with average CPU power estimation and if the scheduler made or missed deadlines.
    - Do not include your source code in the report.
- All files must be zipped up, and the zip file should be titled with <user_id>_<pid>.proj.part2.zip