1.00 Lecture 27

Design Lab III

Reading for next time: Big Java 21.2-21.3

Design Lab

• Focus is on design and building application with sensors and a GUI
• No solutions will be given in class
  – An example solution will be posted at 8pm tonight on the Web site
• Ask a lot of questions as you work through the lab
  – We encourage you to work with someone else
• You do not have to finish the entire program
  – The emphasis is on the design choices and learning to use sensors and Swing, not on all the details.
  – One detail: ignore that the light sensor is not ratiometric
• Put light sensor on port 3, slider on port 4
• Put LEDs on digital ports 1 and 2
Exercise

• Write lighting application with Phidgets and Swing:
  – Light sensor records the ambient light and provides input to the algorithm described below that decides whether to light 1 or 2 LEDs.
  – Slider sensor (simulating an intelligent dimmer switch):
    • When slider level < 100, both LEDs are off.
    • When 100 <= slider level < 500, 1 LED is on.
    • When 500 <= slider level < 800, the number of LEDs turned on depends on the light level reported by the light sensor.
      – Light level > 500 => 1 LED lit;
      – Otherwise both LEDs lit.
    • When slider level >= 800, both LEDs lit.
  – Swing GUI shows:
    • Current light sensor and slider sensor readings
    • Status of each LED: is it turned on or off?
    • Use g2.drawString() within paintComponent()
1.00 / 1.001 / 1.002 Introduction to Computers and Engineering Problem Solving
Spring 2012

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