

cpsc110

Clock

Intro

You are to design a clock. (The Arduino board contains a quartz crystal timing circuit that is about as accurate as a digital watch.) You can design it anyway you want as long as it meets the following constraints:

It must display the time at least to the nearest 15 minutes. That is, you can display the normal hour:minute format, or just gradations like 10:00, 10:15, 10:30, 10:45, but just displaying hours is not sufficient.

It must display time using something more than `serial.println`. The most obvious choice would be to use LEDs. If you want to use something else (a buzzer or whatever) go for it!

The time must be able to be set either by using buttons or by getting the time from your laptop.

Resources

<http://www.thinkgeek.com/homeoffice/lights/59e0/> shows a cool binary clock.

<http://www.danielandrade.net/2008/07/15/binary-clock-with-arduino/> shows how to implement that design using an Arduino. The problem is that it uses 13 LEDs. I can loan out resistors but don't have that many LEDs (I have a few extra). The design also uses 2 pushbuttons.

<http://www.faludi.com/code/open-source-arduino-clock/> As the link suggests, this is open source clock code for the Arduino.

I cut out all the button code of the above to make a minimal clock that works with the Arduino without doing anything hardware-wise. Code for this minimal clock is on our website.

A minimal binary LED design might include 6 LEDs (4 for the hour and 2 for the minutes) and 1 button to set the time (15 minute increments). Or perhaps a servo pointing to the correct time.

Grading

85 points for minimal implementation.