It's Too Early!

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Project:

Motivation:

This project is being used to prototype a better automated system to close curtains, or really to move anything along a horizontal axis, based on input from controls, light sensors, and/or timers. The concept was born from a request from a friend to help him get better sleep, him being an insomniac and a light sleeper, and a major part of this was the orientation of his room to early morning sunlight.

Description:

The base control unit will be an Arduino that controls 2 DC motors, one on either end of a curtain rod which will push/pull the curtain open/closed. The trigger for these actions will be based on multiple inputs such as: remote control, preset timers and configurable ambient light level.

Goal:

The anticipated final product would allow a user to manipulate their curtains with a remote control, configure timer-based triggers through a web browser, and/or configure ambient light triggers through the same browser.

Features:

- Remote Control
- I2C communication with RPi, interface for web configuration
- Web-based configuration

Components:

- 3+ Photocells
- Remote Control
- Receiver
- Arduino
- Rasberry Pi
- 2+ DC motors
- Probably others that do not come to mind

Steps:

- Design circuit for Arduino with multiple DC motors, input sensor, remote receiver, and I2C communication with RPi.
- Code initial Arduino program to allow local control of system.
- Code remote interface for Arduino

- Code web configuration (will probably be doing a little of this at the very beginning since I have little experience with it)
- Code RPi to Arduino communication
- Testing (at every step)

Schedule:

- Week 1:
    - Design initial circuit and code for Arduino
    - Test needed torque for moving curtains
    - Start web-based interface with RPi
- Week 2:
    - Integrate sensors and remote triggers
    - Testing
- Week 3:
    - Integrate web controls through RPi into Arduino
    - Testing
- Week 4:
    - Problem solving and testing