

Monochrome LED strip light dimmer

with ambient light and motion sensors

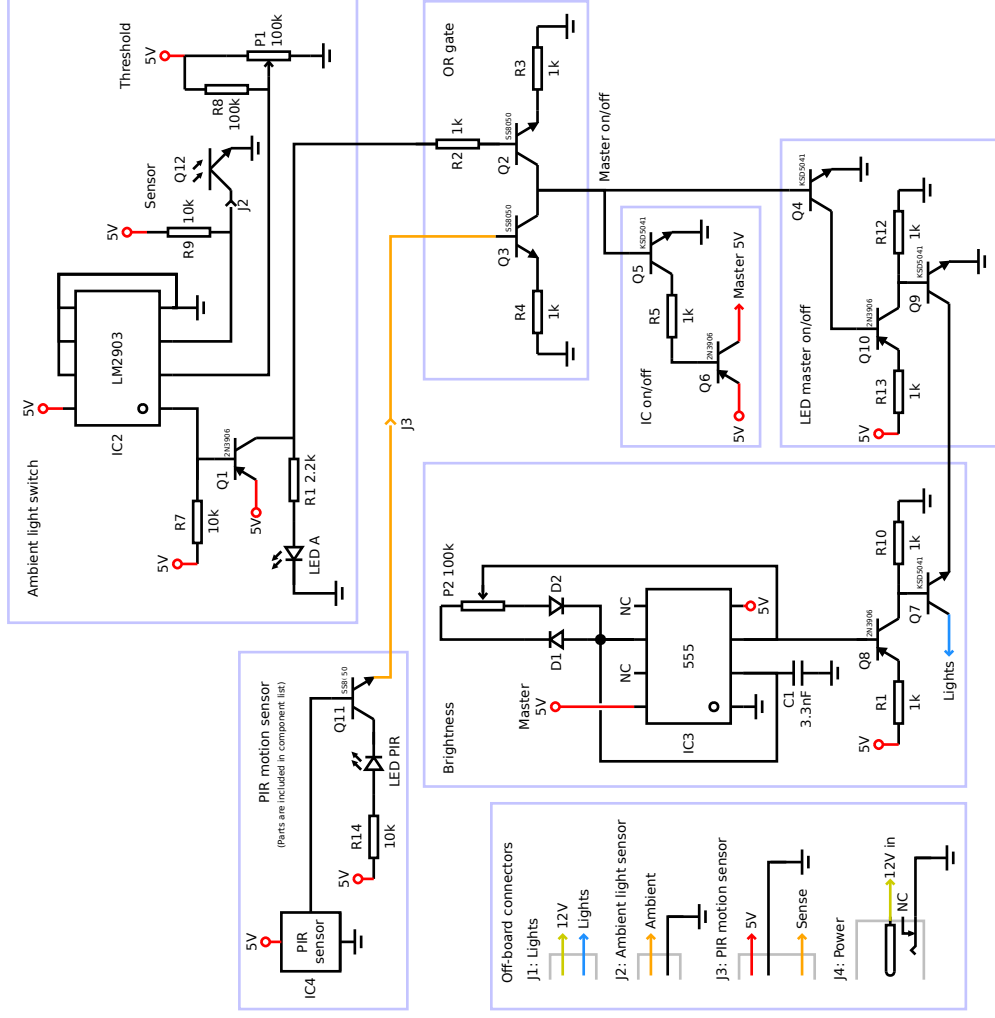
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 Version 1.1 2015-03-08 <http://alephnull.net/software/dioder/pwm.shtml>

Suggested components

- Resistors:**
 4x 1k 2W (R10-R13)
 5x 1k 600mW (all others)
 3x 10k 600mW
 1x 100k 600mW
 2x 100k linear potentiometer with LED
 Bourne PTL45-1500-104B1
- Capacitors (see note):**
 1x 3.3nF
- Transistors:**
 2x KSD5041RTA NPN BJT 20V 5A
 4x 2N3906BU PNP BJT 40V 200mA
 3x 5S8050CBU NPN BJT 40V 1.5A
- Diodes:**
 2x 1N4148 genral purpose
- ICs:**
 1x LM555 timer
 1x LM2903 dual analog comparator
- LEDs (diffused):**
 1x amber (e.g. SSL-LX5093AD 30mcd 30mA)
 1x amber (e.g. LTL-1CHA)
 (potentiometers have LEDs built-in)
- Power supply:**
 1x LD1117V50-DG 5V 800mA LDO (see note)
 1x 12V 2.4A power supply
 (typically supplied with lights)
- Connectors:**
 9x right-angle pin header
 1x 2.1mm plug
 1x 2.1mm right-angle jack
 (e.g. Adafruit 393)
- Sensors:**
 1x PIR motion sensor (e.g. Adafruit 189)
 1x Phototransistor (e.g. OED-PCC-9PS-1L)
- Lights:**
 12V LED light strip (e.g. Ikea Dioder)

Notes

5V regulator (IC1) does not need to be low drop-out
 The phototransistor (Q21) should be in a shadowed location but also have an unobstructed view of the room's main light
 For use as a night light, one might swap pins 2 and 3 on IC2 (LM2903)



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