

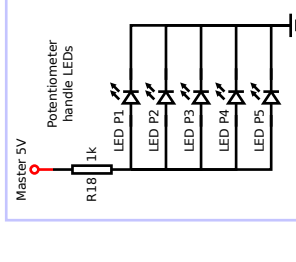
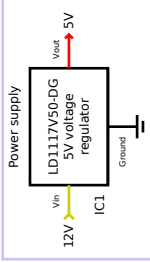
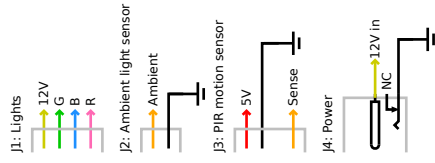
Suggested components

- Resistors:**
- 10x 2k (R1-R10)
 - 1x 600mΩ (all others)
 - 1x 1k (R11)
 - 1x 10k 600mΩ (R12)
 - 1x 100k 600mΩ (R13)
 - 5x 100k linear potentiometer with LED Bourne PTL45-1500-104B1
- Capacitors (see note):**
- C1 470pF
 - C2 3.3nF
 - C3 10nF
 - C4 47nF
- Transistors:**
- 7x KSD5041RTA NPN BJT 20V 5A
 - 10x 2N3906BU PNP BJT 40V 200mA
 - 3x 5S8050CBU NPN BJT 40V 1.5A
- Diodes:**
- 8x 1N4148 genral purpose
- ICs:**
- 4x LM555 timer
 - 1x LM2903 dual analog comparator
- LEDs (diffused):**
- 1x red (e.g. TLUR6400 15mcd 10mA)
 - 1x green (e.g. TLUGS405 15mcd 10mA)
 - 1x blue (e.g. TLUR6400 15mcd 10mA)
 - 1x amber (e.g. SSI-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-9P5-1L)
- Lights:**
- 12V common-anode RGB (e.g. Ikea Dioder)

Notes

- C1 should be much lower value than C2, C3, or C4
- C2, C3, and C4 should be (approximately) relatively prime to one another
- 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)

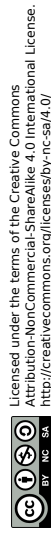
Off-board connectors



RGB LED strip light dimmer with ambient light and motion sensors

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Version 1.0 2015-03-07 <http://alephnull.net/software/dioder/pwm.shtml>

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