

# Diodes as Light Sources and Detectors



Series Circuit

$$V = iR + V_D$$

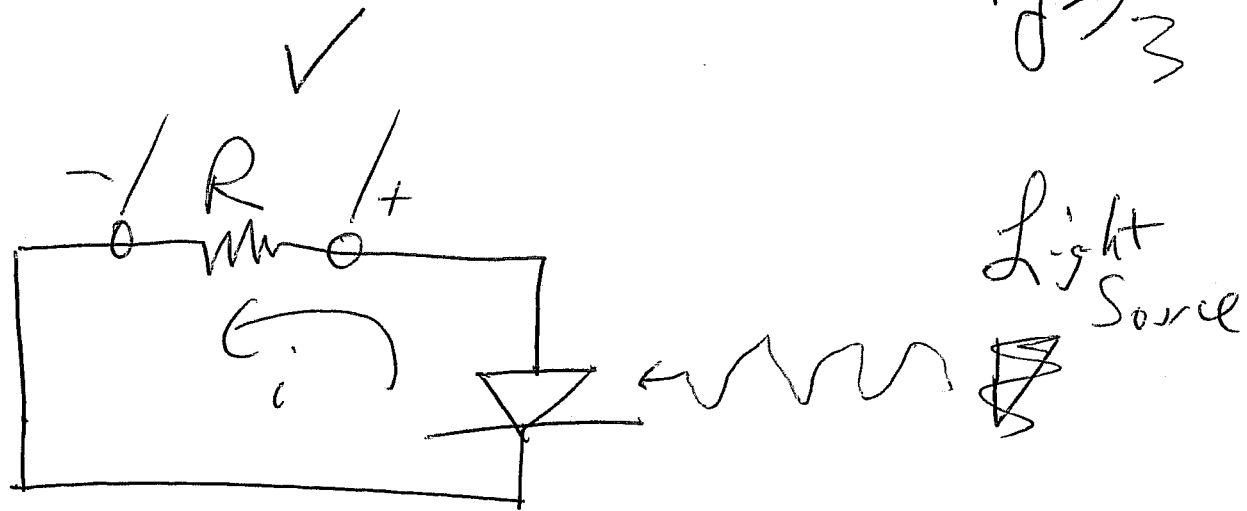
So

$$i = \frac{V - V_D}{R}$$

↳ Diode Voltage drop

$$V_D = 1.2V$$
$$V = 9V$$

So  $i = 8/1000 \text{ A} \approx 10 \text{ mAmps}$   
 $1 \text{ mA} = 0.001 \text{ A}$



$i$  = Photocurrent  $\Rightarrow$  Current caused by incoming light  $\Rightarrow$  Photo voltaic effect like a solar panel.

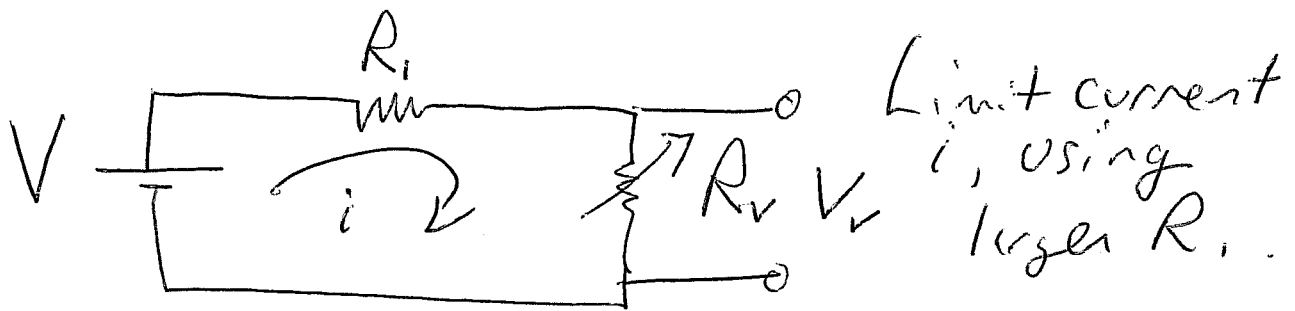
Measure  $V$  as a step to determine  $i$ .

$$V = iR \quad i = V/R$$

# Thermistor

Pg 3/3

- 1) Add thermistor to LUGS.
- 2) Measure its resistance, then after holding it. Then after coating it with Cotton - fingers



$$V_v = \frac{R_v V}{R_v + R_1} \quad \text{so}$$

$$R_v (V - V_v) = R_1 V_v$$

$$R_v = \frac{R_1 \left( \frac{V_v}{V - V_v} \right)}$$

How to use something like labjack.