

Log book 2

Activity 1:

1.1:

$$R_{\text{Light}} = 1\text{k Ohm}$$

$$R_{\text{Dark}} = 100\text{k Ohm}$$

(Approximately)

1.2:

$$V_{\text{out-light}} = 2.7\text{V} \quad V_{\text{out-dark}} = 5\text{V}$$

$$I_{\text{LDR-light}} = 2.5 \text{ mA}$$

$$I_{\text{LDR-dark}} = 0 \text{ mA}$$

1.3:

$$V_{\text{out-light}} = 2.5 \text{ V} \quad V_{\text{out-dark}} = 0.1\text{V}$$

$$I_{\text{LDR-light}} = 2.4 \text{ mA}$$

$$I_{\text{LDR-dark}} = 0 \text{ mA}$$

1.4:

The main difference is where the anode of the V source is connected to and the range of voltage divided by the circuit:

- In 1.2, the source is connected to 1k Ohm R, dividing the voltage from 5V (original) to 2.7V (~Half)
- In 1.3, it is connected to LDR, the range goes from ~0V to 2.5V (Halves the source)

Activity 2:

2.1:

$$\Delta V_{\text{Out}} := 4\text{V} (10\text{k Ohm})$$

$$R_{\text{fixed}} = \sqrt{1000 \cdot 100 \cdot 10^3} = 10\text{k Ohm}$$

2.2:

