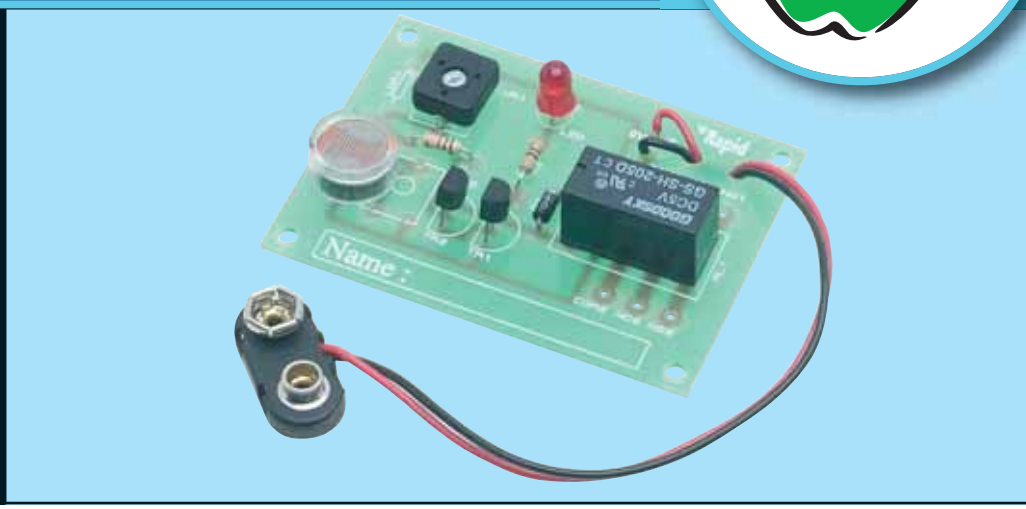
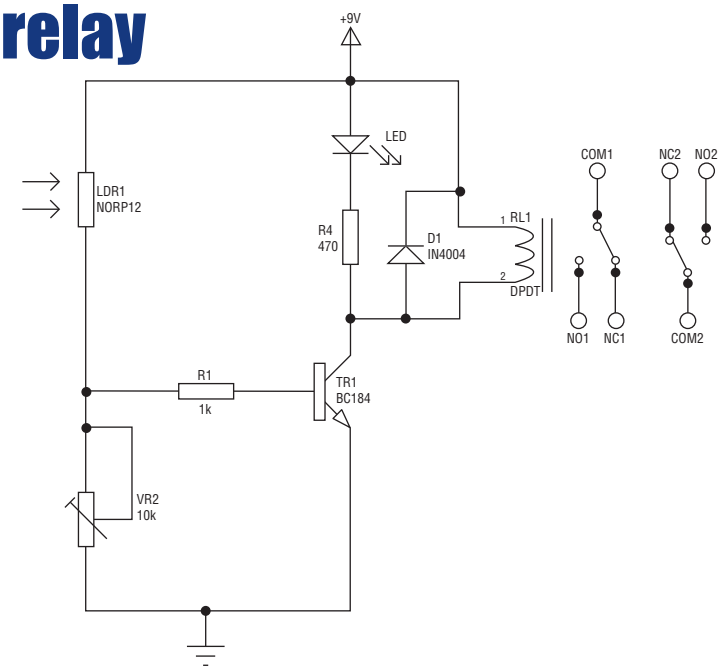
LDR project kit

KEY STAGE 2,3&4

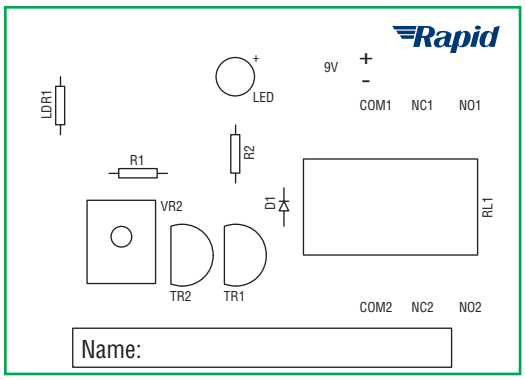


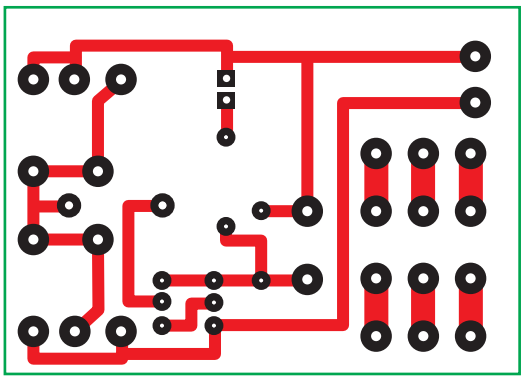
Basic circuit with relay

When the LDR is exposed to light its resistance falls, thus the base current increases and consequently the collector current. The LED will be illuminated and the relay will energise. RV2 will adjust the level of light needed to turn the LED on.



Assembly. To assemble this circuit follow the procedure on page 2.





Rapid

Class notes for:

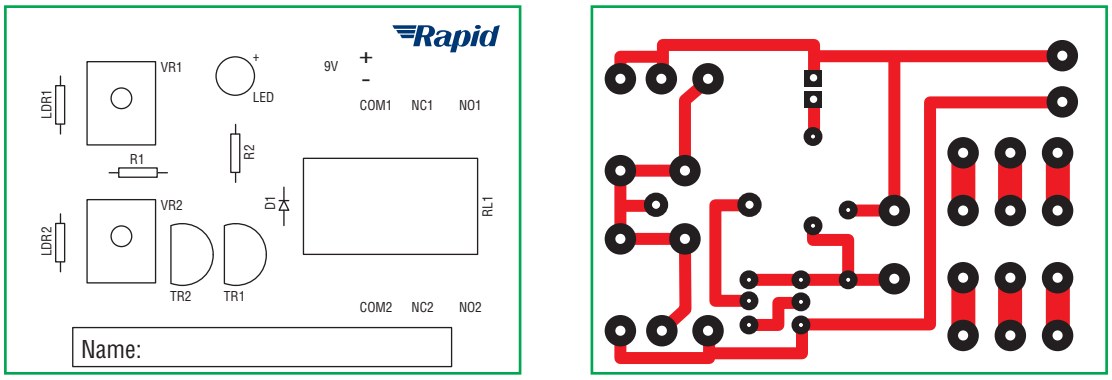
LDR Project kit 70-0245

Procedure

1. Identify all the components you will use.
2. Place and solder the resistors R1, R2 and D1.
3. Now place and solder VR2, LDR1 and the LED.
4. Place and solder the battery clip and TR1: **making sure the base connection goes to the centre hole of TR2**, not to its normal position.
5. Place and solder the relay RL1.
6. Check the circuit works by connecting a battery to the clip. Set VR2 to its mid position, cover the LDR with your hand, the LED should be off and the relay de-energised. Now remove you hand from the LDR and provided there is enough light in the room the LED should come on and the relay energised. Remember VR2 acts as a light sensitivity control.

Components list

Reference	Description	Order code
R1	1k0 0.25W	62-0370
R2	470R 0.25W	62-0362
D1	1N4004	47-3136
VR2	10k horizontal preset	67-0230
LDR1	NORP12	58-0132
LED	Red	55-1790
TR1	BC184	81-0038
PCB	LDR PCB	70-0250
Battery clip	PP3 clip	18-0094
RL1	5V 70Ω DPDT relay	60-4690

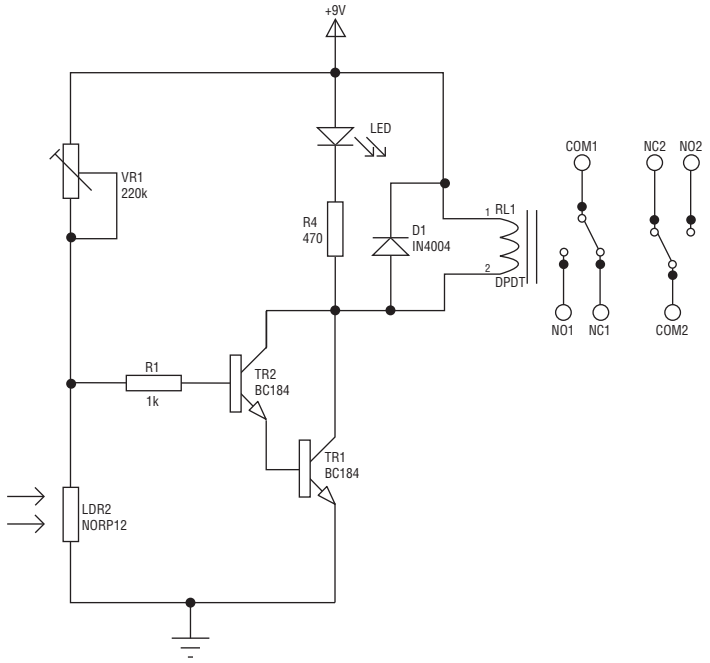


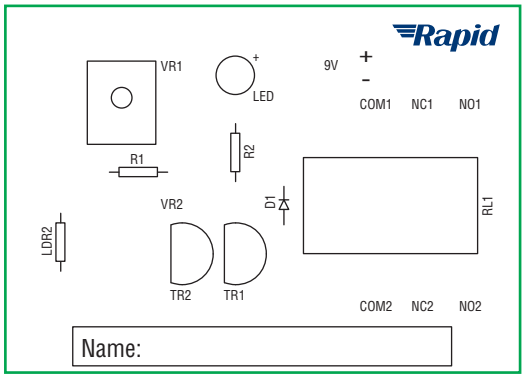
Complete PCB and layout

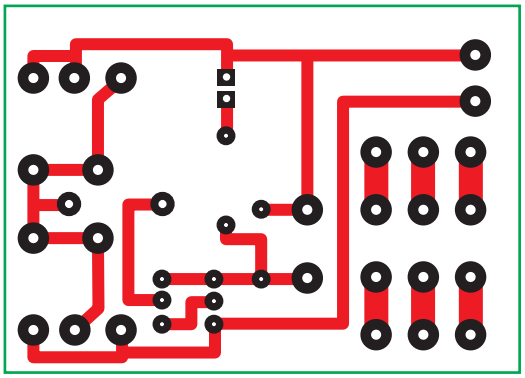
LDR circuits

Reverse operation circuit using Darlington transistors

This circuit has the preset and the LDR reversed. When the LDR is covered the LED and the relay will be ON, uncover the LDR and the LED and relay will be OFF.







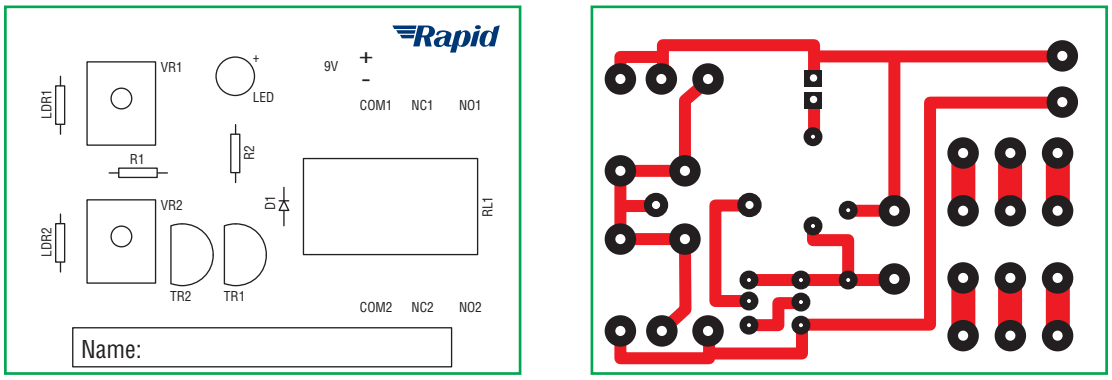
Assembly. To assemble this circuit follow the procedure on page 4.

Procedure

1. Identify all the components you will use.
2. Place and solder the resistors R1, R2 and D1.
3. Now place and solder VR1, LDR2 and the LED.
4. Place and solder the battery clip, TR1 and TR2.
5. Place and solder the relay RL1.
6. Check the circuit works by connecting a battery to the clip. Set VR1 to its mid position, cover the LDR with your hand, the LED should be on and the relay energised. Now remove you hand from the LDR and provided there is enough light in the room the LED should be off and the relay de-energised. VR1 now acts as a light sensitivity control.

Components list

Reference	Description	Order code
R1	1k0 0.25W	62-0370
R2	470R 0.25W	62-0362
D1	1N4004	47-3136
VR1	220k horizontal preset	67-0250
LDR2	NORP12	58-0132
LED	Red	55-1790
TR1 and TR2	BC184	81-0038
PCB	LDR PCB	70-0250
Battery clip	PP3 clip	18-0094
RL1	5V 70Ω DPDT relay	60-4690



Complete PCB and layout