

The Mouse and the Hot Wire



Quantity	Name	Description	Label/Color Code
2	Q1, Q2	Transistor BC547	BC547
1	D1	LED 5 mm green	
1	D2	LED 5 mm red	
2	R1, R2	Resistor 430 Ω	YE OR BK BK BR
2	R3, R4	Resistor 4.7 k Ω	YE VI BK BR BR
2	R5, R6	Resistor 47 k Ω	YE VI BK RE BR
1	SW1	Switch	
1	SW2	Pushbutton	
1	Rigid cable (approx. 50 cm)		
1	flexible cable (approx. 30 cm)		
1	printed circuit board (PCB)		
1	battery holder for AA (Mignon) batteries		
2	AA (Mignon) batteries (not included)		

Difficulty: ●●○○○ Build Time: 1–2 hours

Manual v2.0 CC BY-SA 4.0 Binary Kitchen e.V.

PCB v1.0 CC BY-NC-SA 4.0 blinkyparts GmbH

Farblegende: SI = silber; GO = gold; BK = schwarz; BR = braun; RE = rot; OR = orange; YE = gelb; GR = grün; BL = blau; VI = violett; GR = grau; WH = weiß

Safety Information

- **WARNING:** Not suitable for children under 14 years of age.
- Choking hazard due to small parts that can be swallowed.
- **We recommend:** Supervision of the assembly and soldering process by an adult.
- Keep these assembly instructions in a safe place for future reference! They contain important information.
- If the battery runs out, replace it with a new battery with the same specifications.
- During soldering, the soldering iron, solder, and components being soldered become very hot.
- **ALWAYS** wear safety goggles when soldering and assembling the kit.
- Always use a fireproof surface when soldering! This prevents the components from slipping.
- Always use a suitable soldering iron holder to store the soldering iron safely during assembly.
- The kit is only intended for battery operation.
- Never allow small children to play with the kit alone! The kit uses small batteries. If these are swallowed, get stuck in the esophagus, and are not treated, this can trigger a harmful chemical reaction and have serious consequences within two hours. If this happens, seek medical attention immediately.
- **CAUTION:** Never connect the kit to mains voltage! This poses a serious risk to life!
- Please dispose of the device at a certified disposal facility at the end of its service life. This is good for the environment and ensures proper disposal.
- Subject to changes and errors.

Disposal

This appliance is labelled in accordance with the European Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). The directive provides the legal framework for the take-back and recycling of waste equipment throughout the EU.

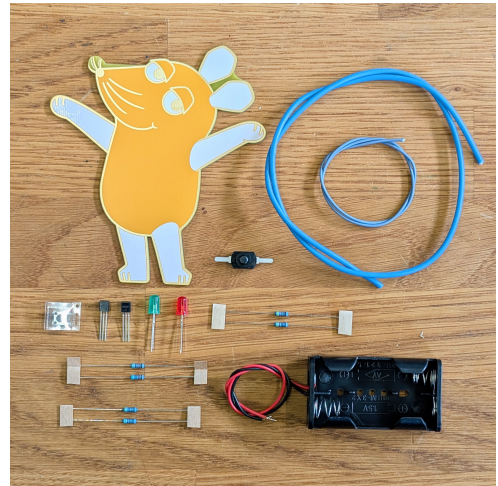
- **packaging:** The packaging is made of environmentally friendly materials and is therefore recyclable. Dispose of packaging materials that are no longer needed accordingly.
- **waste equipment:** Old appliances often still contain valuable materials. Therefore, hand in your old appliance to your retailer or a recycling centre for reuse. Please ask your retailer or your local authority for the current disposal routes.

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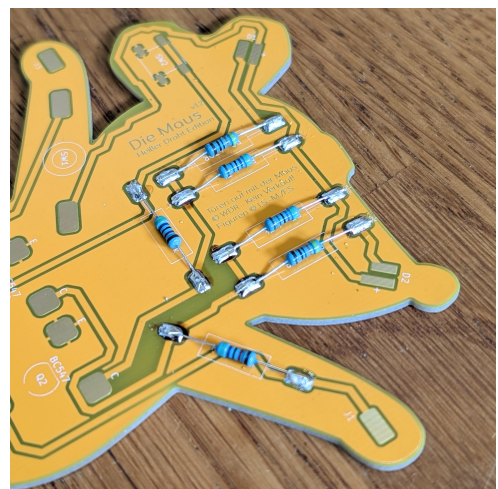
Step 1

- Check all components and use the list on the first page and the image to make sure everything is complete.
- Tip: You can identify resistance values using the color code on the resistors. You can also use a multimeter to measure the resistors.



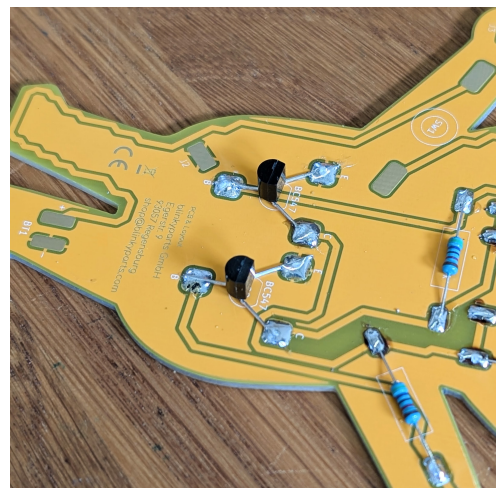
Step 2

- We will start with resistors R1 and R2 (**YE OR BK BK BR**), R3 and R4 (**YE VI BK BR BR**) and R5 and R6 (**YE VI BK RE BR**).
- Solder these onto the back of the circuit board. The number and value of each resistor is printed on the circuit board. It is important that you solder the correct resistor in the correct place, otherwise it will not work afterwards.
- It does not matter which way round the resistors are soldered on.
- First apply solder to one of the two pads and then slide the resistor onto it from the side until it is properly positioned. The other wire should reach the second pad.
- Then solder the other leg on.
- Cut off the excess legs. Be careful not to scratch the circuit board.



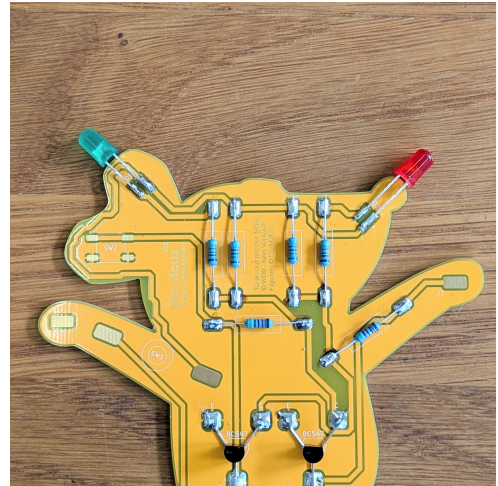
Step 3

- Now take both BC547 transistors in your hand.
- Caution: These have a direction. You can tell which way is which by the flattened side of the black part. The outline is also printed on the circuit board.
- Bend the legs into a star shape so that the middle leg points away from the flattened side.
- Bend the two outer legs diagonally toward the flattened side (you can correct this later).
- Solder Q1 and Q2 onto the circuit board. The flat side should point towards the head of the mouse.
- Cut off the excess wire.



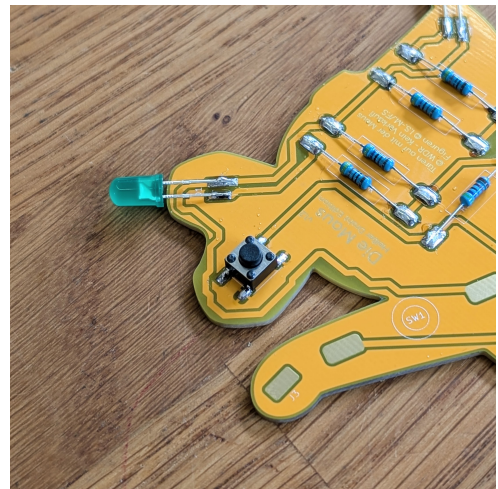
Step 4

- a) In this step, you will solder the red and green LEDs.
- b) Attention: LEDs have a specific installation direction. You can tell which way round they go by the length of the legs. The longer leg is the positive side (plus side). The + symbol is also marked on the circuit board, and the plus pad is slightly longer on the circuit board.
- c) Solder the green LED to D1 and the red LED to D2.
- d) Cut off the excess wire.



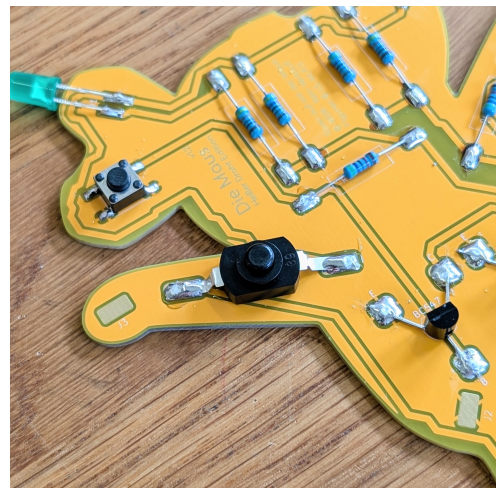
Step 5

- a) We have two buttons. One has four legs and the other has two. Take the one with four legs and solder it to SW2. The direction of the button does not matter.



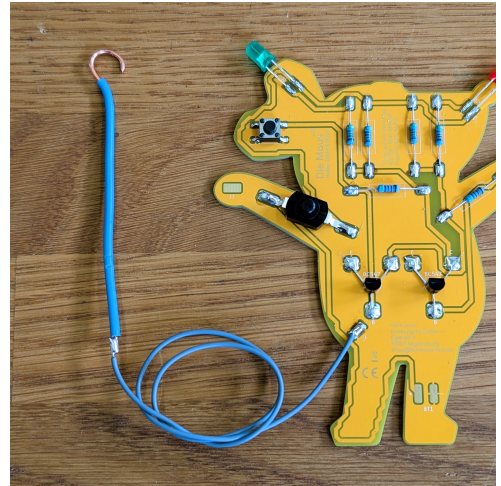
Step 6

- a) Caution: When performing this step, do not leave the soldering iron on the solder tabs of the button for too long. It is somewhat sensitive to heat.
- b) The switch (two pins/legs) has no direction.
- c) Apply some solder to one of the pads on switch SW1.
- d) Bend the legs of the switch so that they can touch the surface of the circuit board.
- e) Heat the pad with solder again and push one leg of the switch onto the pad from the side.
- f) Make sure that the other leg of the switch touches the other pad.
- g) Now solder the other side in place.



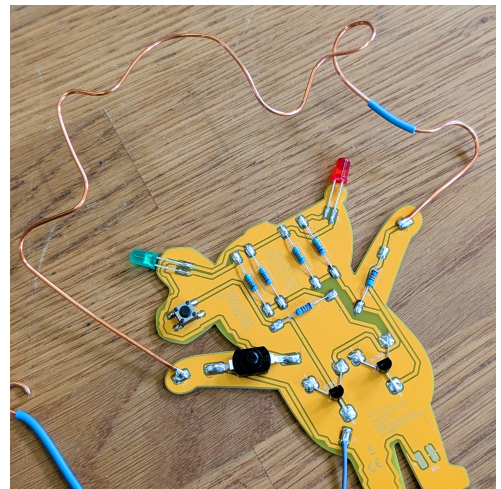
Step 7

- Take the rigid wire and cut off 10 cm.
- Remove 2 cm of insulation on one side and 0.5 cm on the other side so that the bare copper wire is visible.
- Bend the wire on the 2 cm side to form a small open hook.
- Now take the flexible wire and remove 0.5 cm of insulation from each side.
- Solder one side of the flexible wire to the short side of the rigid wire and the other side to J2.
- Tip: It is easier if you tin the wire ends beforehand.



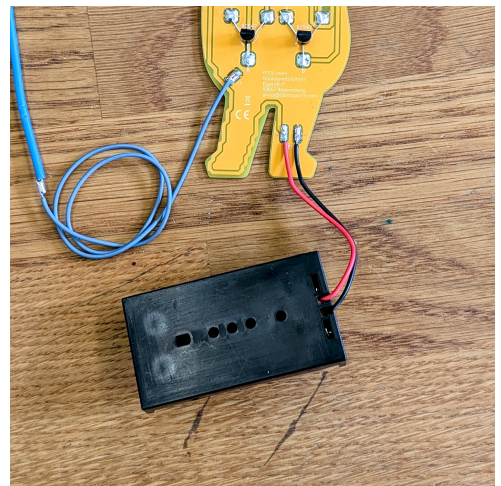
Step 8

- Now take the long piece of rigid wire and remove the insulation completely.
- Bend your hot wire into the shape you want.
- You can add breaks (using a short piece of insulation or tape). You can build loops and also go backwards or forwards. Let your imagination run wild!
- Tip: Use round objects such as screwdrivers or pens, to bend the wire into a nice round shape.
- Then tin the two ends of the rigid wire and solder them to the circuit board at J1 and J3.
- Caution: Use pliers or a third hand, as the wire gets very hot!



Step 9

- Now solder the battery holder to BT1. The red cable to + and the black cable to -.
- Optional: You can shorten the cable by 6 cm if you wish.



Step 10

- a) You can now paint the mouse. It usually has brown arms, legs, ears, and black eyes. But there are no limits to your imagination.
- b) How about a tattoo or sunglasses?



Step 11

- a) Now glue the circuit board to the battery holder with hot glue so that it serves as a stand.
- b) Try your luck and see if you can complete your hot wire!
- c) If it's too difficult, you can make the hook a little bigger or make your course easier.

