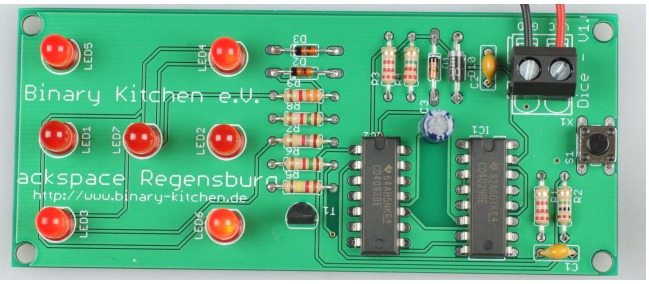
Dice (DIP)



Quantity	Name	Description	Label/Color Code
2	C1, C2	Ceramic Capacitor 100 nF	104
1	C3	Capacitor 47 µF	
3	D1, D2, D3	Diode BAW 76	
1	D10	Diode 1N4007	
1	IC1	CMOS-IC 4029	
1	IC2	CMOS-IC 4093	
7	LED1 – LED7	LED 5 mm	
2	R1, R3	Resistor 2.2 kΩ	RE RE BK BR BR
1	R2	Resistor 1 MΩ	BR BK BK YE BR
1	R4	Resistor 2.2 MΩ	RE RE BK YE BR
1	R5	Resistor 120 kΩ	BR RE BK OR BR
2	R6, R8	Resistor 1.5 kΩ	BR GR BK BR BR
1	R7	Resistor 1.8 kΩ	BR GR BK BR BR
1	R9	Resistor 3.3 kΩ	OR OR BK BR BR
1	T1	Transistor BC547B	
1	S1	Push Button	
1	X1	Terminal Block 2-poles (optional)	
1	PCB		
1	IC-Socket 14-polig		
1	IC-Socket 16-polig		
1	Battery Clip für 9 V Block		
1	Battery 9 V Block (not included)		
1	Battery 9 V Block (not included)		

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

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

- ATTENTION: Not suitable for children under 3 years, choking hazard due to small parts that may be swallowed.
- We recommend: Supervision of the assembly and soldering process by an adult.
- Keep these operating instructions in a safe place for later use! It contains important information.
- If the battery is empty, replace it only with a new battery with the same values.
- When soldering, the soldering iron, the solder and also the components being soldered become very hot.
- Always wear safety glasses when soldering and assembling the kit.
- Always use a fire proof soldering pad when soldering! This prevents the components from slipping away.
- To keep the soldering iron safe during assembly, always use a suitable soldering stand.
- The kit is designed for battery operation only.
- CAUTION: Never connect the kit to 230 V mains voltage! There is an absolute danger to life!
- Please take the device to appropriately certified disposal companies at the end of its service life. This is good for the environment and ensures correct 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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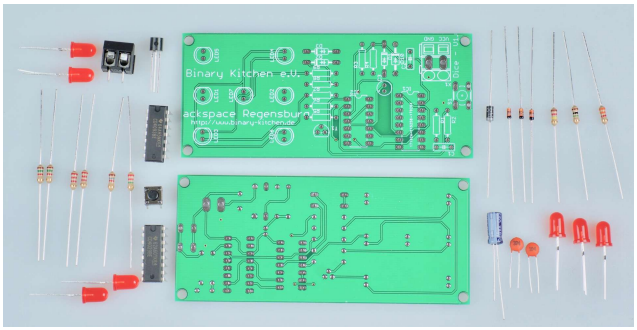
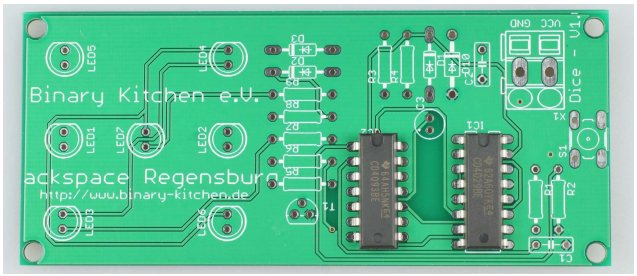
Step 1

a) Tips:
b) Resistor value can be determined by color coding
c) Alignment of the board so, that Binary Kitchen e.V. can be read normally (see picture)
d) Alignment for resistors does not matter
e) LEDs have a flat side and a shorter leg. Both indicate the negative side



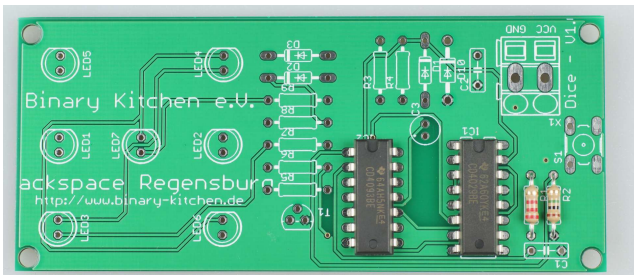
Step 2

a) Solder both IC sockets (Only the socket, not the actual IC device) with the nose up on the board
b) Attention: Do not solder the IC but only the IC socket
c) Note the pin count: IC1 with 14 pins left, IC2 with 16 pins right



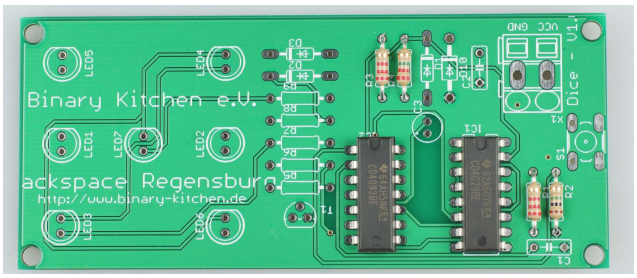
Step 3

a) Solder resistors R1 RE RE BK BR BR (2.2 kΩ) and R2 BR BK BK YE BR (1 MΩ)
b) orientation does not matter



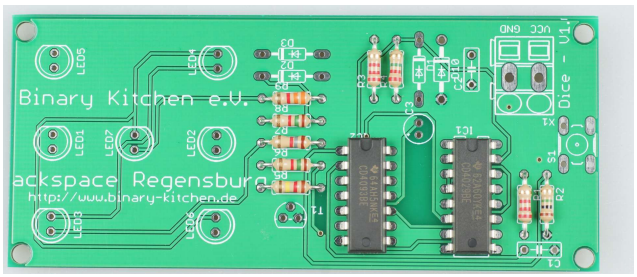
Step 4

a) Solder resistors R3 RE RE BK BR BR (2.2 kΩ) and R4 RE RE BK YE BR (2.2 MΩ)
b) orientation does not matter.



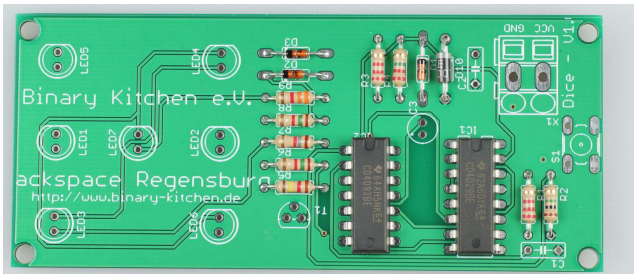
Step 5

a) Solder resistors R5 BR RE BK OR BR (120 kΩ),
R6 BR GR BK BR BR (1.5 kΩ),
R7 BR GR BK BR BR (1.8 kΩ),
R8 BR GR BK BR BR (1.5 kΩ) and
R9 OR OR BK BR BR (3.3 kΩ)
b) orientation does not matter.



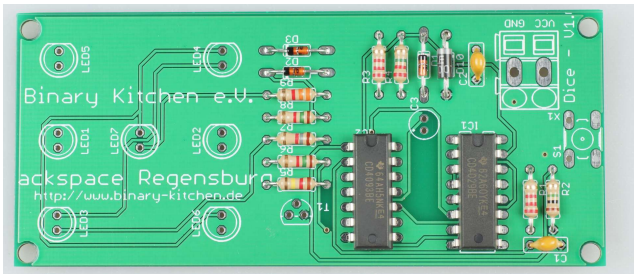
Step 6

a) Attention! Orientation of diodes is important
b) solder diodes D1 to D3 (BAW76) with black side towards white mark on PCB
c) solder diode D10 (1N4007) with white side towards white mark on PCB



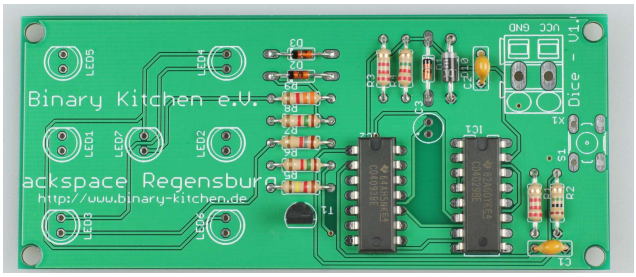
Step 7

a) Solder capacitors C1 (104) and C2 (104)
b) orientation does not matter



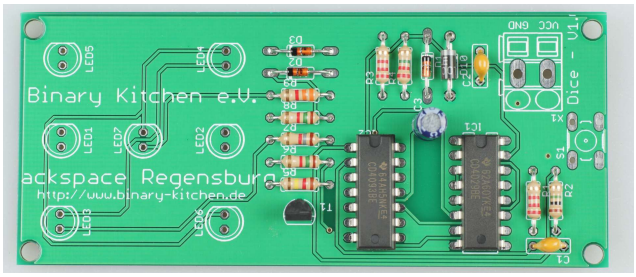
Step 8

a) Attention! Orientation of the transistor is important
b) solder transistor T1 (BC547) according to the marking
c) orientation: flat side downwards



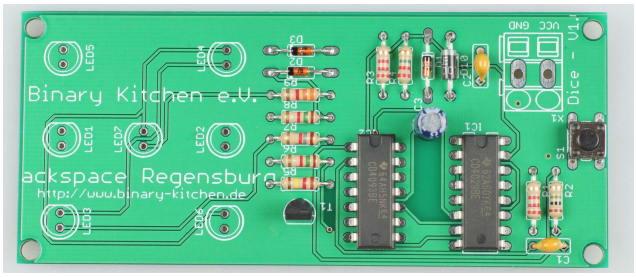
Step 9

a) Attention! Alignment of this capacitor is important
b) Solder capacitor C3 (47 µF) with long leg (+) downwards
c) Hint: There is a plus sign printed on the board.



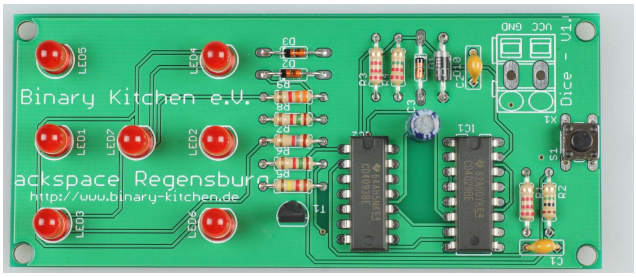
Step 10

a) Solder switch S1
b) Hint: Legs have different distances. Nothing has to be bent. Switch fits exactly
c) Some pressure may be necessary



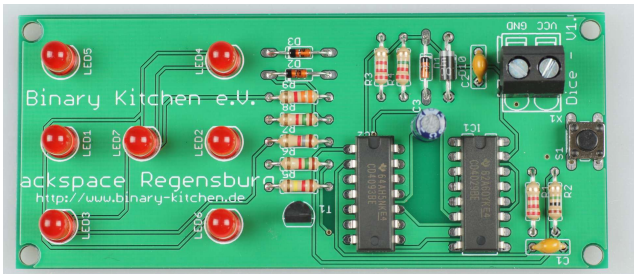
Step 11

a) Attention! Alignment of LED is crucial
b) Solder LED 1-7. Alignment important! Short leg upwards



Step 12

a) Solder power connector X1 with opening upwards
b) As an alternative, the cables can also be soldered directly (VCC red, GND black)
c) before doing so, guide the cable through the hole next to the connection and tie it in a knot (strain relief).



Step 13

a) Connect battery holder (VCC red, GND black)
b) Insert both ICs into the sockets (count the number of legs! There are differences here)
c) Insert batteries
d) Push button. Done
e) Cube goes off again by itself