

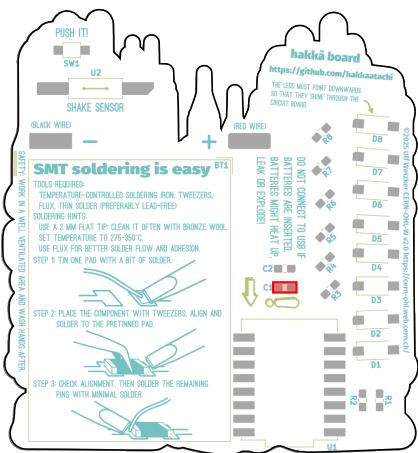
# The "ハッカー" Board

## (hakkā)

### 1 Decoupling capacitor

Stabilizes the supply voltage and serves as a quick energy source during moments of high current demand.

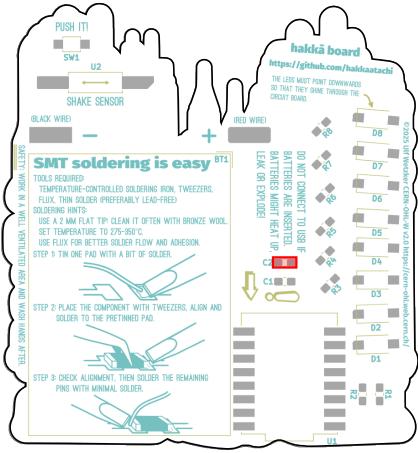
C1 100 nF



### 2 Decoupling capacitor

Stabilizes the supply voltage and serves as a quick energy source during moments of high current demand.

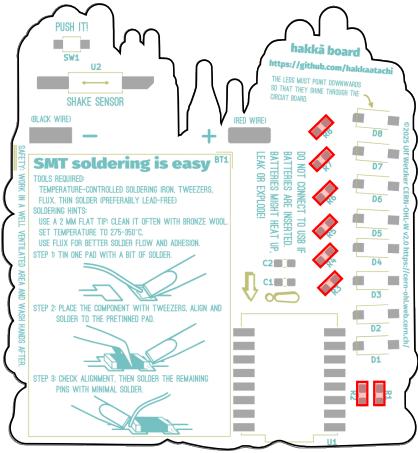
C2 47 uF



### 3 Current-limiting resistors for LEDs

They limit the current through the LEDs and determine how bright they are or whether they burn out.

R1 - R8 1k Ohm

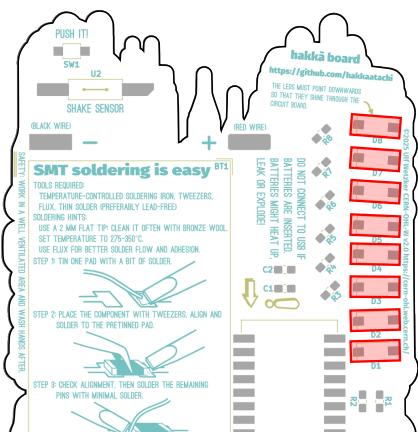


### 4 LEDs

"Light-Emitting Diode" is a tiny piece of silicon (semiconductor) that lights up when current flows through it.

D1 - D8 LED

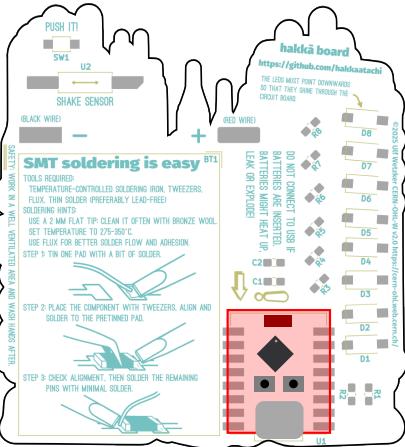
LEDs – like all diodes – only allow current to flow in one direction and must therefore be installed with the correct polarity. On our board, the LEDs are also mounted upside down.



### 5 Microcontroller board

A compact board with a processor and memory that can be programmed to control various tasks.

U1 ESP32C3

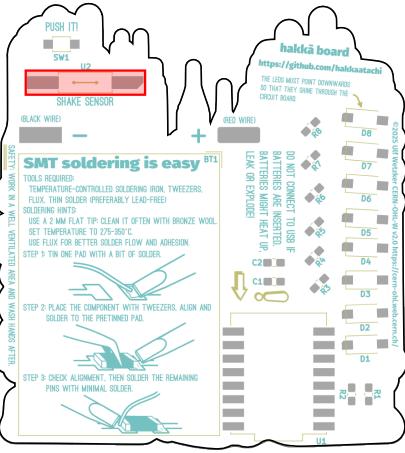


### 6 Shake sensor

Works like a switch that is activated by a sideways movement.

U2 Shake-Sensor

A pull-up resistor in the microcontroller ensures that the input pin connected to the shake sensor remains at a fixed voltage. This suppresses external interference signals. However, it must be activated in the software.

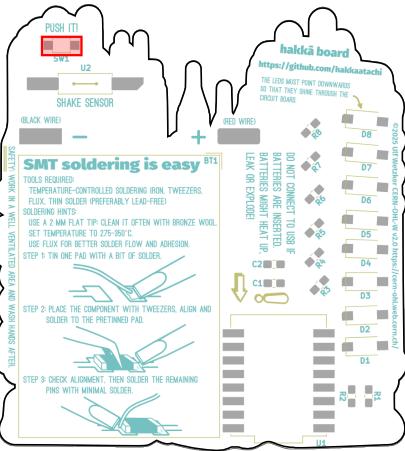


### 7 Switch

A switch that closes the circuit purely mechanically for as long as it is pressed.

SW Switch

A pull-up resistor in the microcontroller ensures that the input pin connected to the button remains at a fixed voltage. This suppresses external interference signals. However, it must be activated in the software.

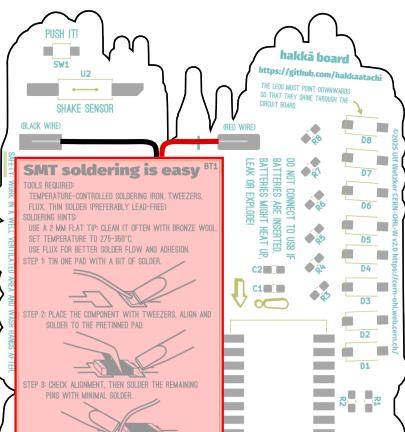


### 8 Battery holder

Three AAA batteries in series, each 1.5V, provide a total of 4.5V for our circuit.

BT1 3xAAA Battery holder

If the microcontroller board is connected via USB, at least one battery must be removed to prevent overheating. Otherwise, the batteries may leak or even explode.



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