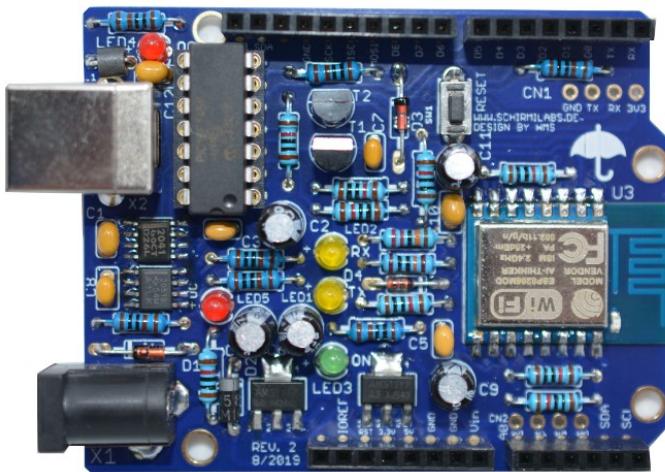
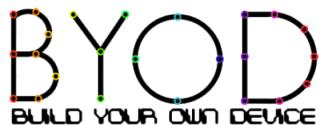


Assembly manual

Eduino WiFi



Arduino UNO compatible WiFi development board
based on the ESP8266EX



Features

- 11 digital input/output pins. All pins have Interrupt, PWM, I2C and One-Wire (except for D0)
- 1 analog input (3.2V max input voltage)
- USB Type B connector
- Power jack, 6-12 V input voltage
- Compatible with Arduino
- Compatible with NodeMcu

Technical specs

Microcontroller	ESP8266-EXM
Microcontroller USB to serial converter	PIC 16F1455
Operating voltage	3.3V
Digital I/O pins	11
Analog input pins	1 (Max. input voltage: 3.2V)
Clock speed	80MHz/160MHz
Flash	4M Bytes
Length	68.6 mm
Width	53.4 mm
Weight	29 g

Pin mapping

Pin	Function	ESP-8266 Pin
Tx	TXD	TXD
Rx	RXD	RXD
A0	Analog input	A0
D0	IO	GPIO16
D1	IO, SCL	GPIO5
D2	IO, SDA	GPIO4
D3	IO, 10k Pullup	GPIO0
D4	IO, 10k Pullup	GPIO2
D5	IO, SCK	GPIO14
D6	IO, MISO	GPIO12
D7	IO. MOSI	GPIO13
D8	IO, 10k Pulldown, SS	GPIO15
Gnd	Ground	GND
5V	5V	-
3.3V	3.3V	3.3V
RST	Reset	RST

Required tools

	Soldering iron or station
	Solder
	Side cutter
	Safety goggles
	Tweezers
	Lead bending tool (optional)
	Desoldering tool (optional)

Parts list

Component	Labeling	Quantity
Resistor 1k	R2, R4, R5, R7, R9, R10, R11	7
Resistor 10k	R1, R3, R6, R8, R12, R13, R14, R17, R18	9
Resistor 100k	R16	1
Resistor 220k	R15	1
Capacitor 100nF	C1, C3, C5, C7, C8, C10, C12	7
Electrolytic Capacitor 10uF	C2, C9	2
Electrolytic Capacitor 47uF	C4, C6	2
Electrolytic Capacitor 100uF	C11	1
LED 3mm green	LED3	1
LED 3mm yellow	LED1, LED2	2
LED 3mm red	LED4, LED5	2
Diode 1N4148	D4	1
Diode 1N5189	D2	1
Z-Diode ZPD 3.3	D3	1
Z-Diode ZPD 5.1	D1	1
Transistor BC 547	T1, T2	2
AMS 1117 3.3	U6	1
AMS 1117 5.0	U1	1
TPS2041BD	U2	1
TPS2051DB	U7	1
PIC16F1455	U4	1
Header female 6 pin RM 2.54	AD	1
Header female 8 pin RM 2.54	IOL, POWER	2
Header female 10 pin RM 2.54	IOH	1
USB B Buchse	X2	1
Hohlbuchse 2.5/5.5	X1	1
Ferrite bead	L1	1
ESP12 module	U3	1
IC socket 14 pin		1
PCB Eduino WiFi		1

Component Orientation Terms used in this document:

The “Component side” of the board is referred as the “Top side”.

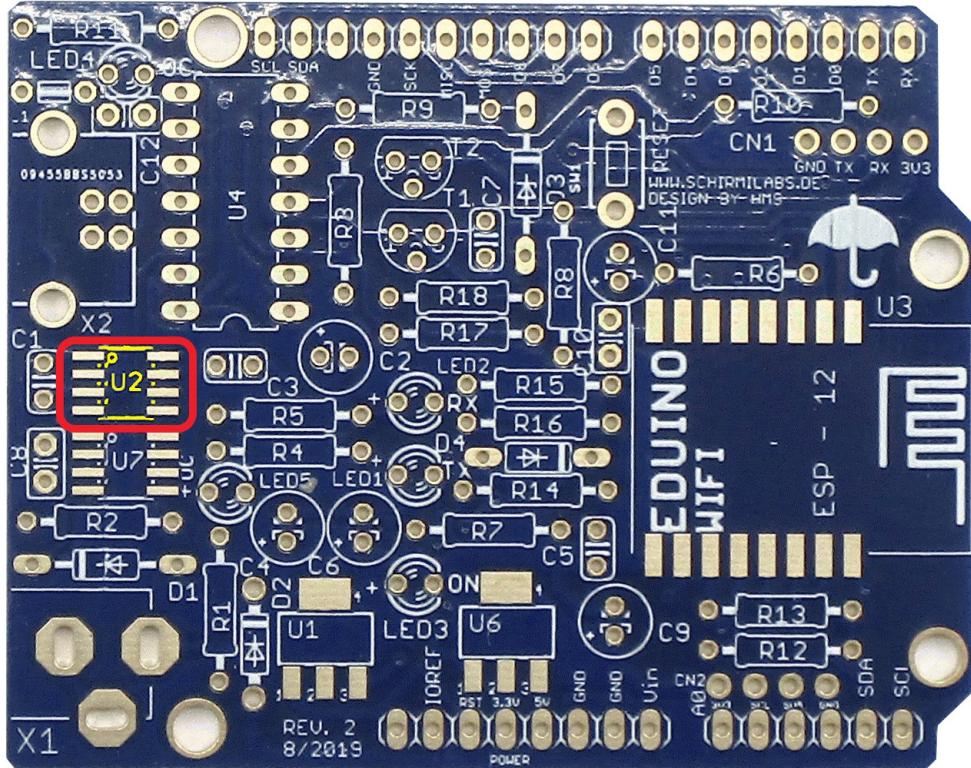
The “Solder side”of the board is referred to as the “Back side”.

Within the pictured steps, we use:

“Upwards and Downwards” for top and bottom.

“Left and Right” for left and right.

The components should be mounted on the Top side of the board, in the red enclosed areas designated in the assembly manual pictures.



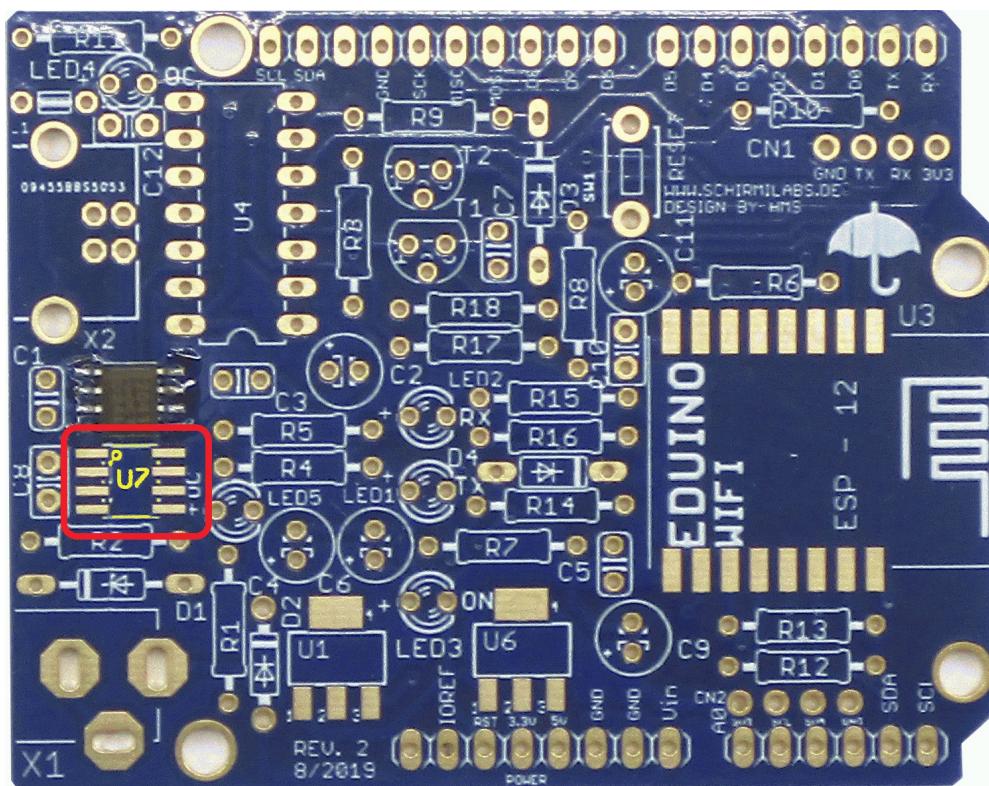
Step 1:

U2

TPS 2041

Check orientation!

The gray line on the IC has to be positioned upwards, at the little yellow circle inside of the red enclosed area.



Step 2:

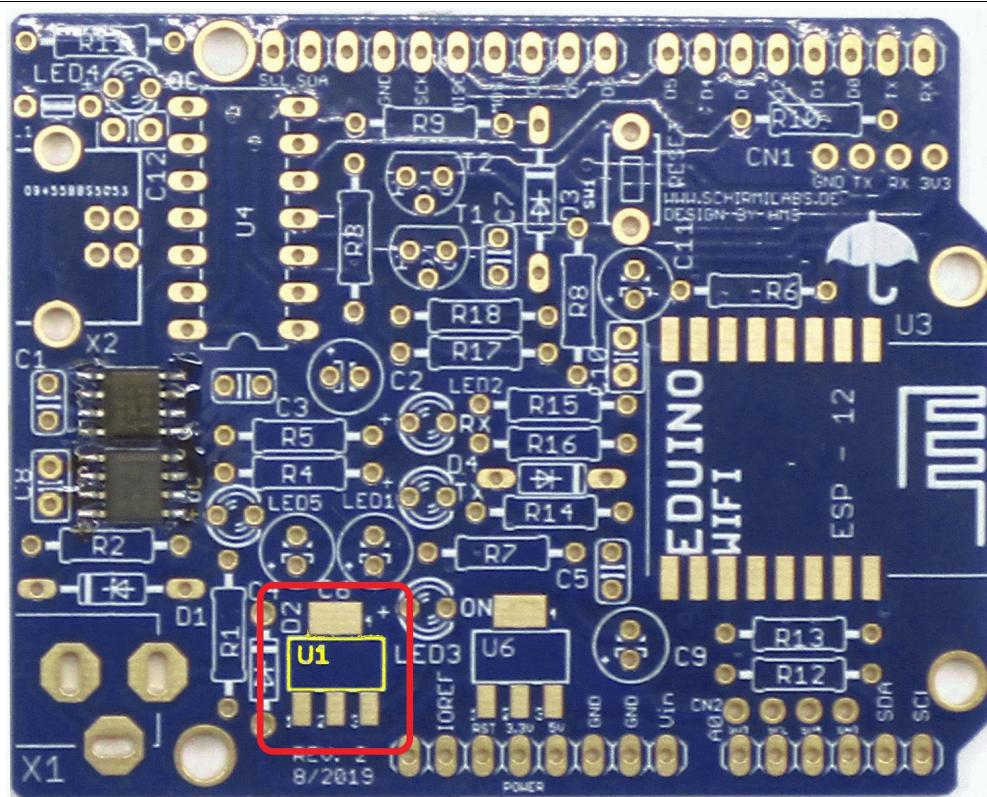
U7

TPS 2051

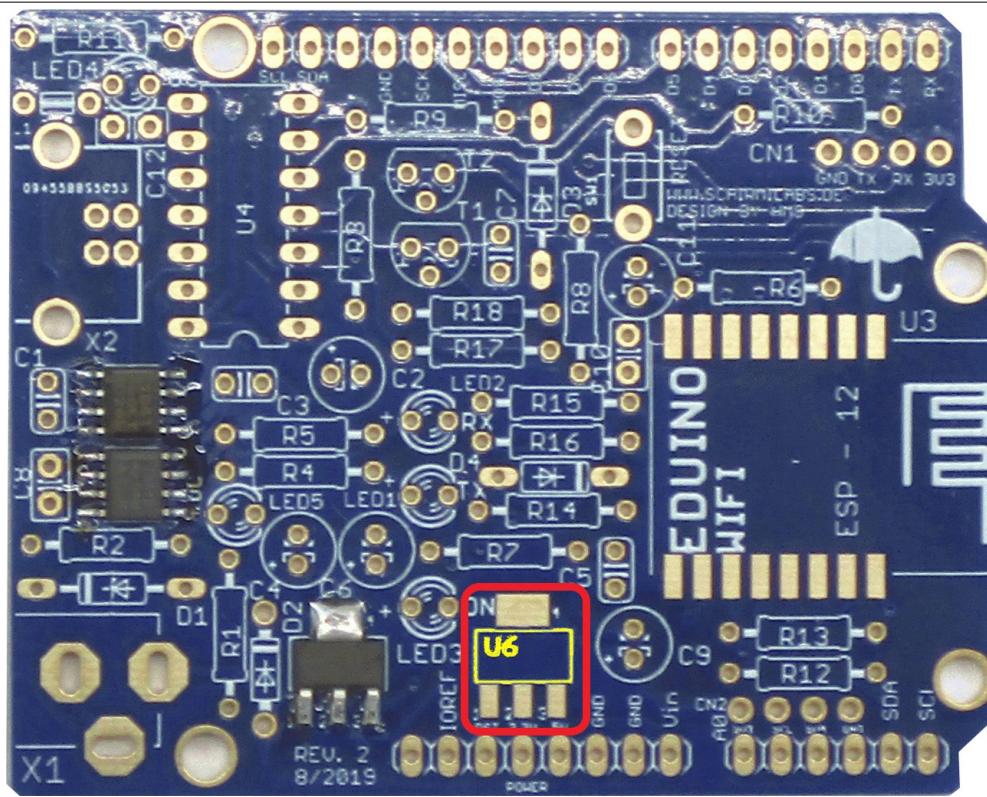
Check orientation!

The gray line on the IC has to be positioned upwards at the little yellow circle inside of the red enclosed area.



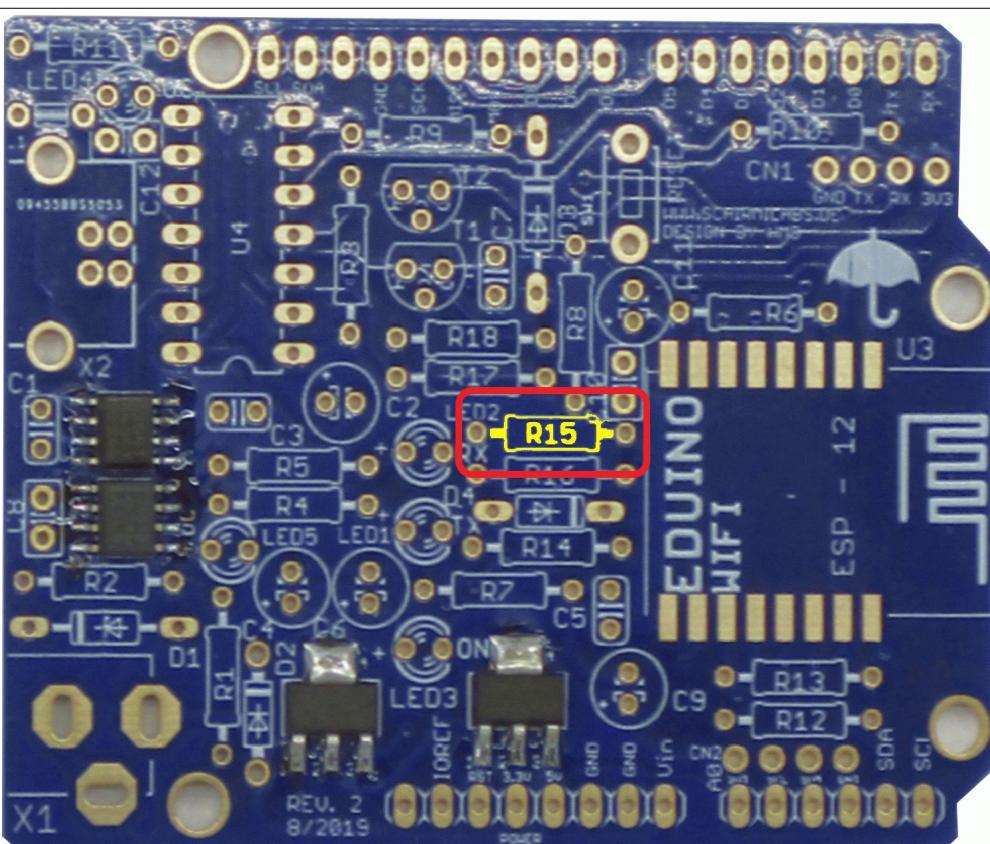


Step 3:
U1
AMS 1117-5.0



Step 4:
U6
AMS 1117-3.3



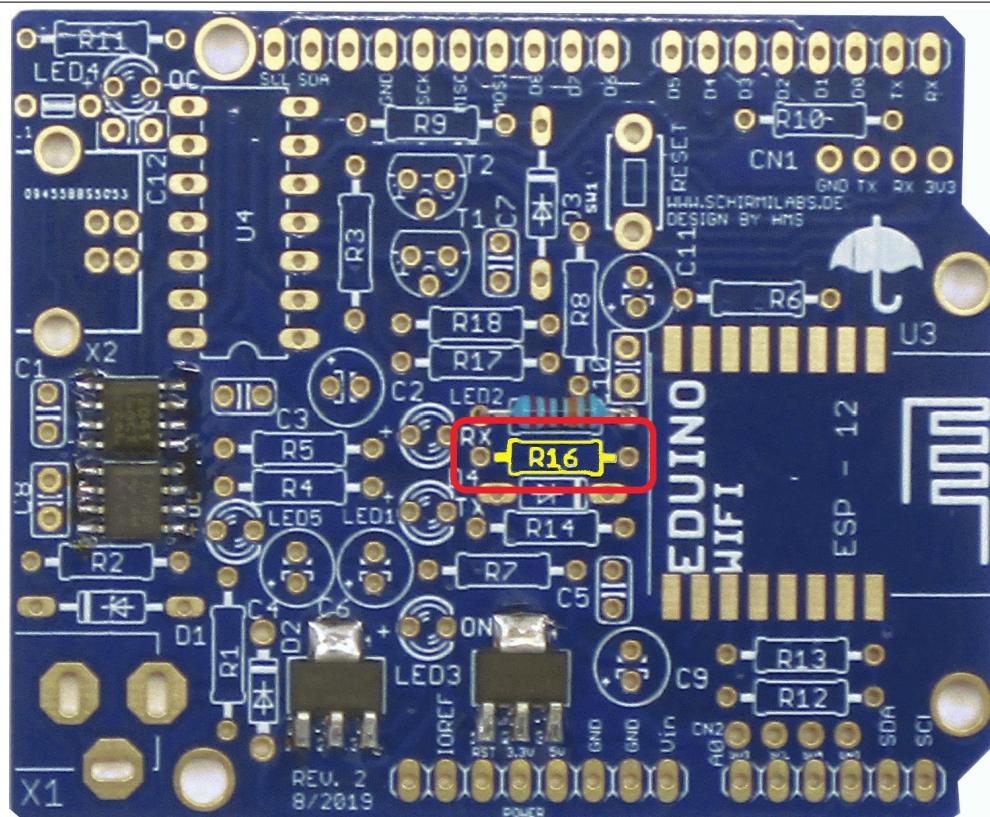


Step 5:

R15

Resistor 220k

(red, red, black,
orange, brown)



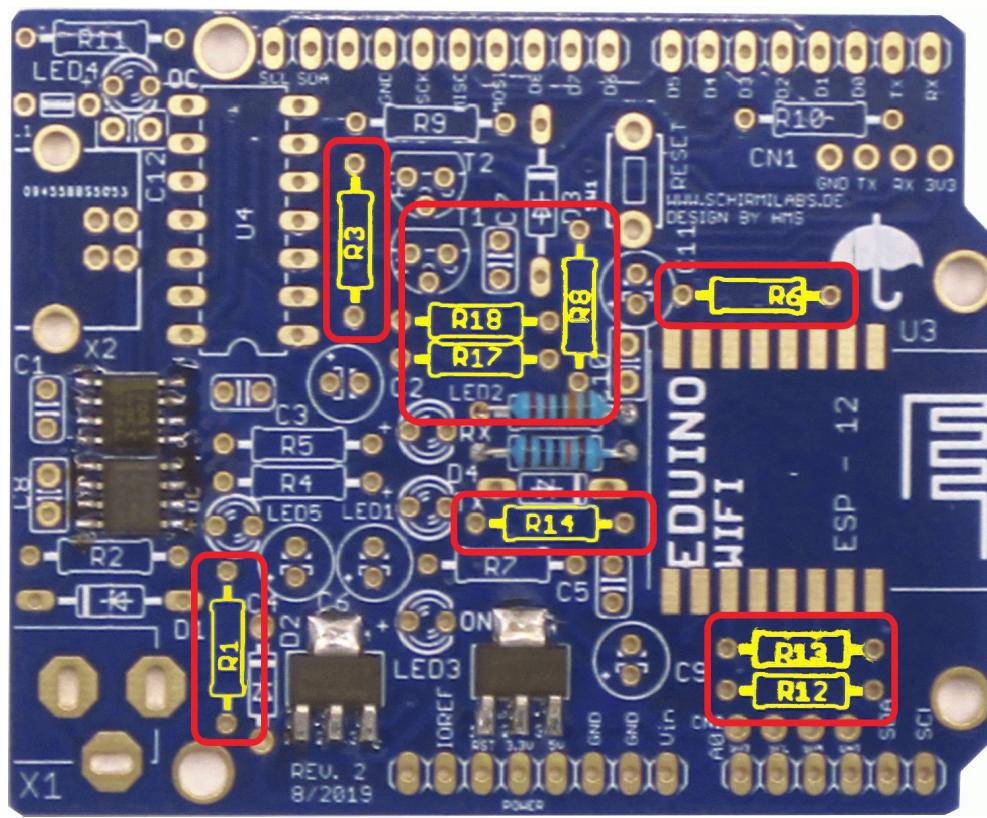
Step 6:

R16

Resistor 100k

(brown, brown,
black, orange,
brown)



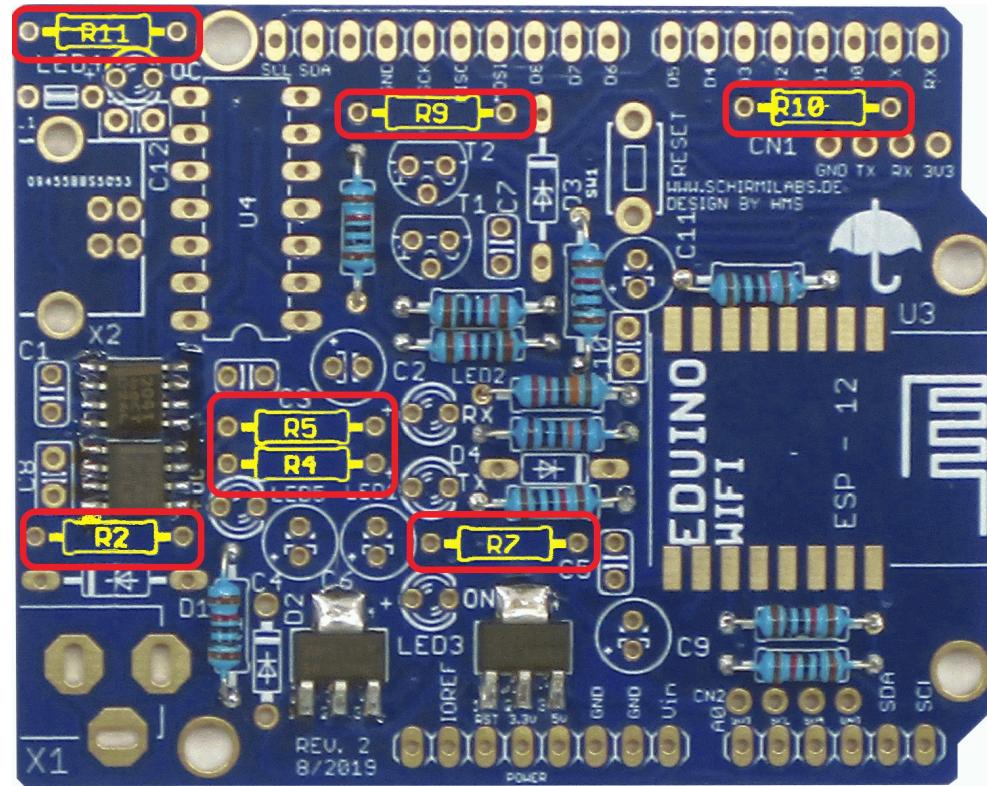


Step 7:

R1, R3, R6, R8,
R12, R13, R14,
R17, R18

Resistor 10k

(brown, black,
black, red, brown)



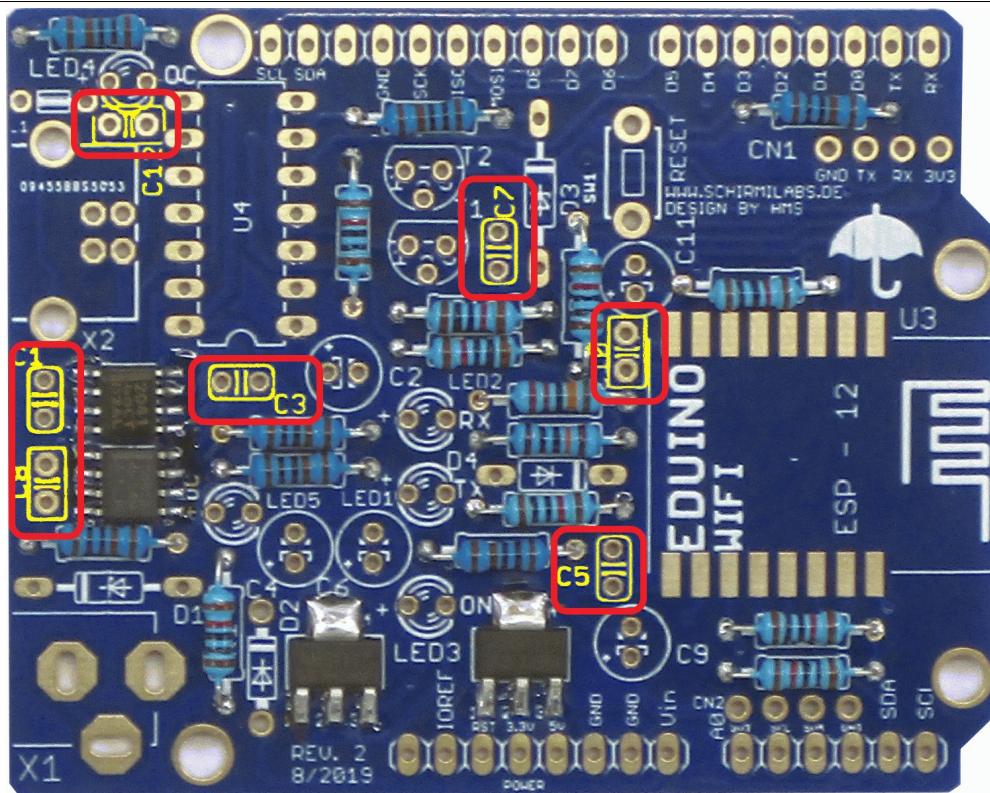
Schritt 8:

R2, R4, R5, R7,
R9, R10, R11

Resistor 1k

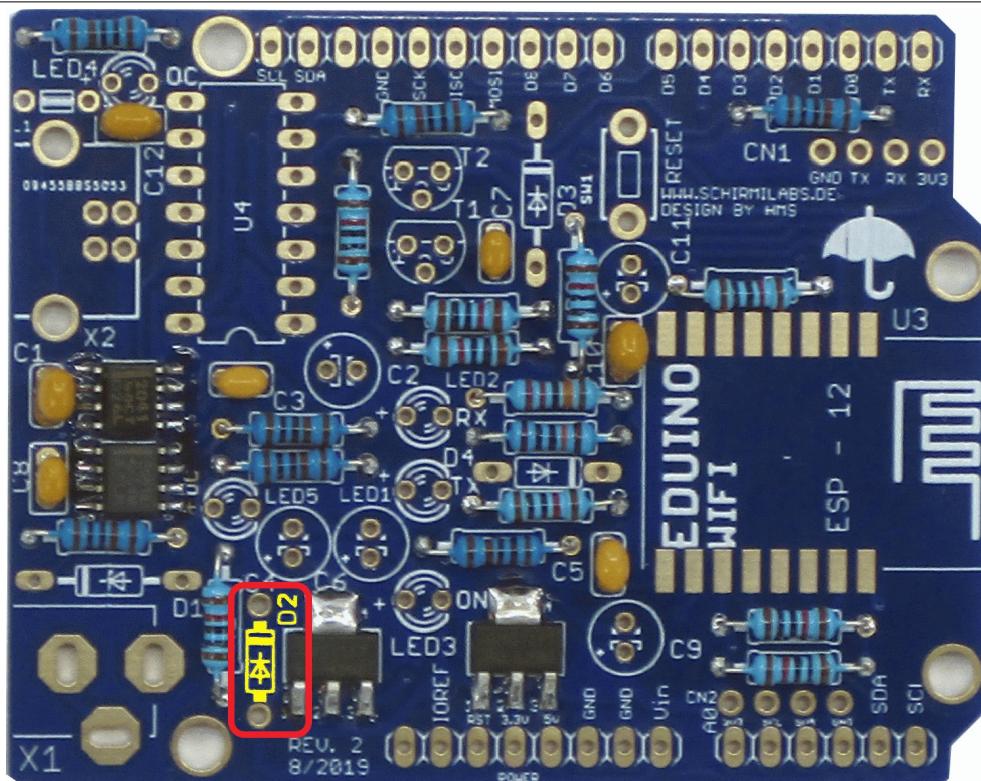
(brown, black,
black, brown,
brown)





Step 9:
C1, C3, C5, C7,
C8, C10, C12

Capacitor
100 nF

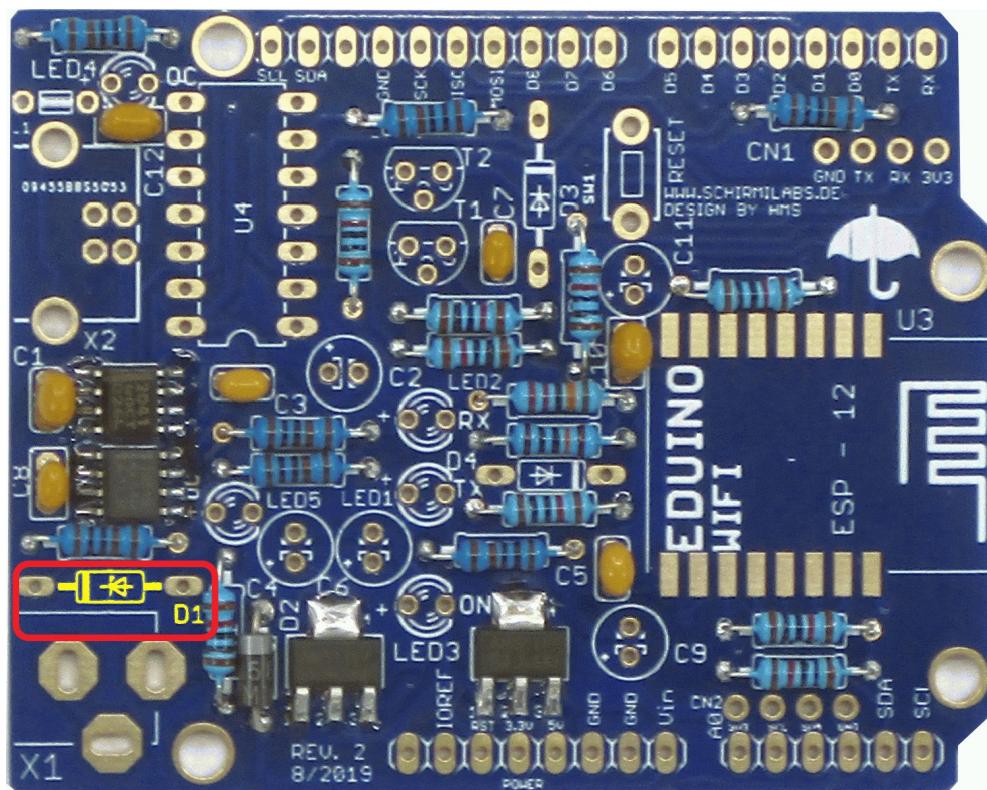


Step 10:
D2

Diode 1N5189

Check polarity !
The gray marking has to be positioned upwards.





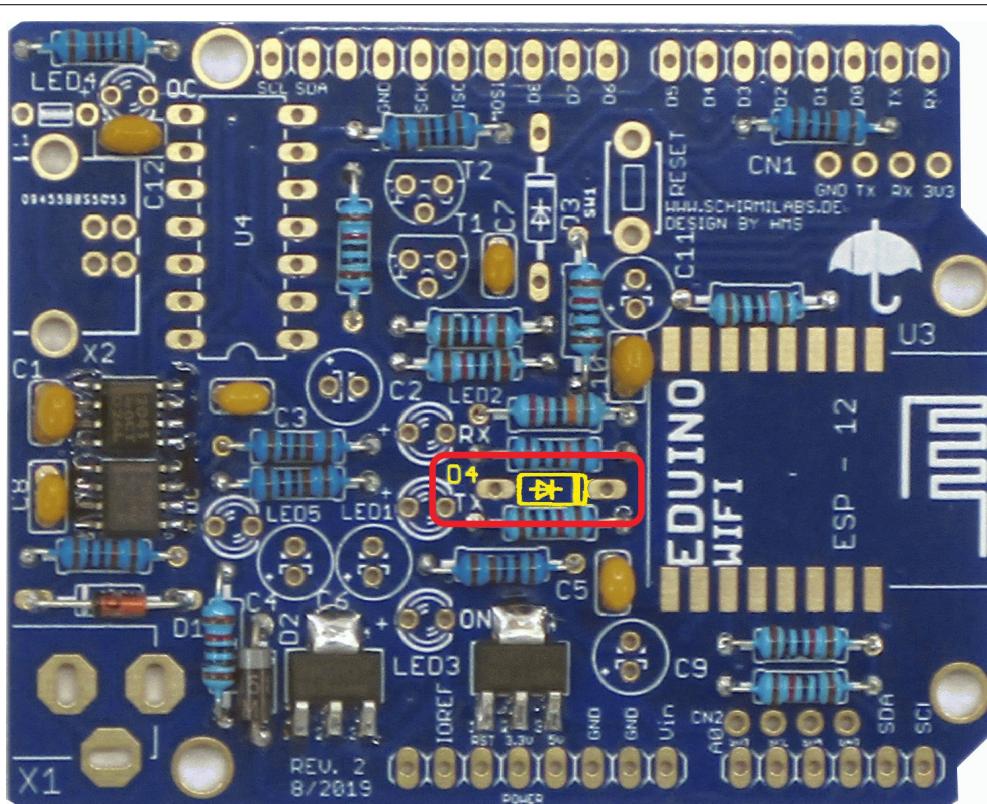
Step 11:

D1

Z-Diode ZPD 5.1

Check polarity !

The black marking
has to be
positioned on the
left side



Step 12:

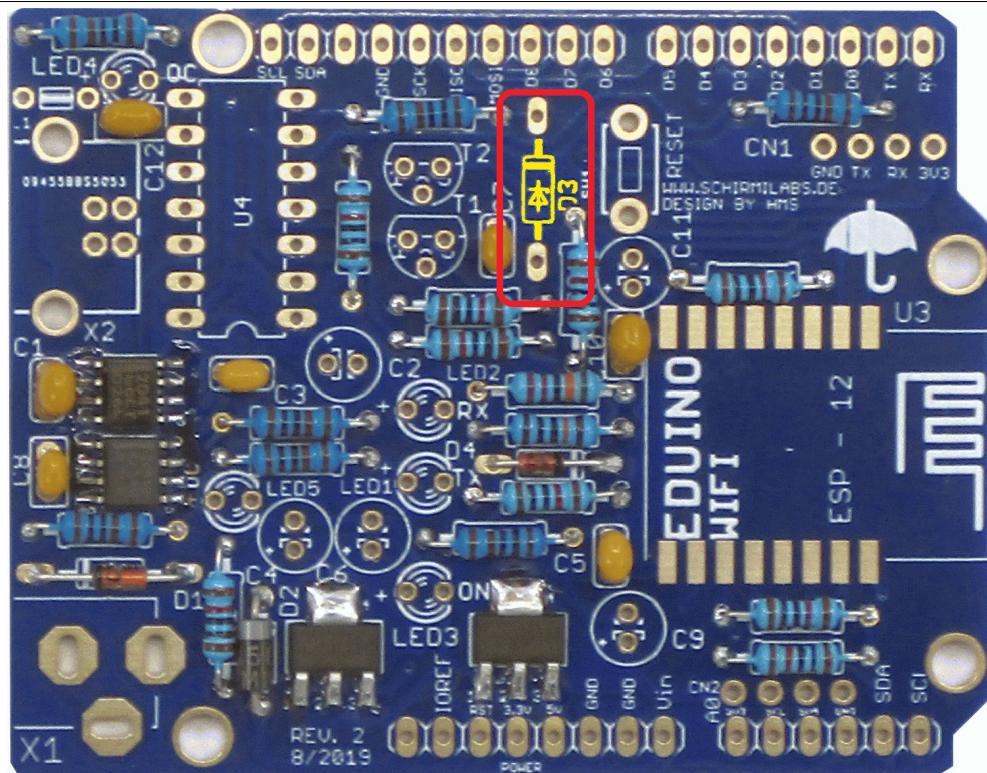
D4

Diode 1N4148

Check polarity !

The black marking
hast to be
positioned on the
right side

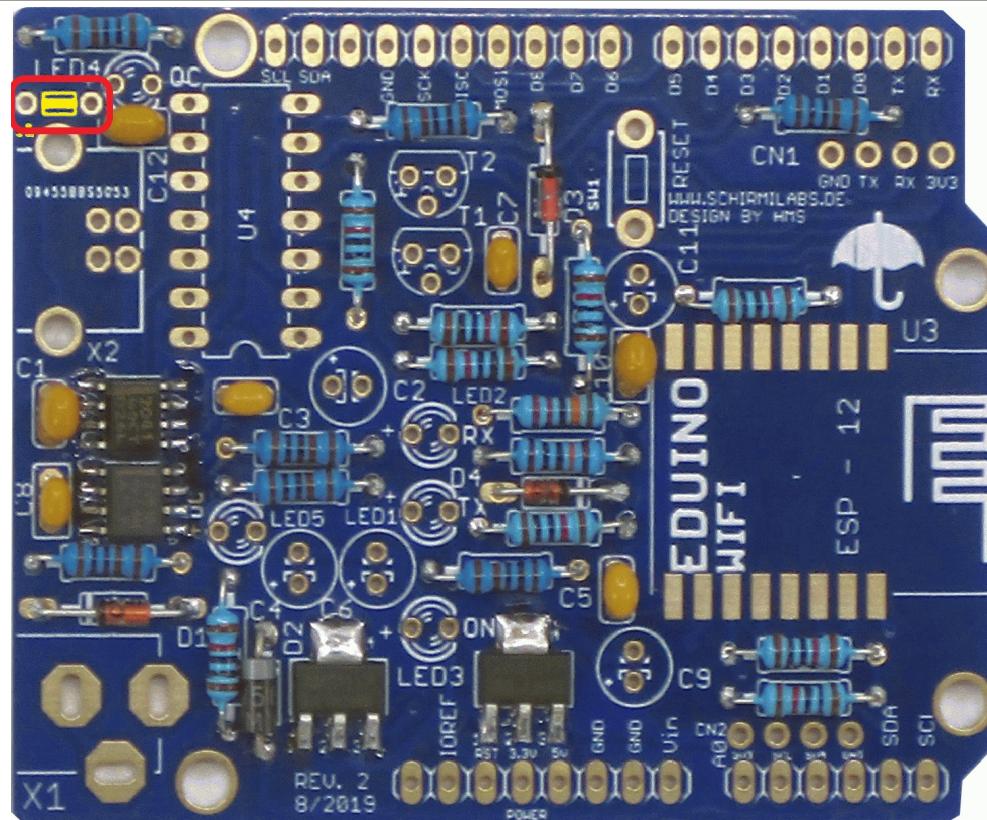




Step 13:
D3
Z-Diode ZPD 3.3

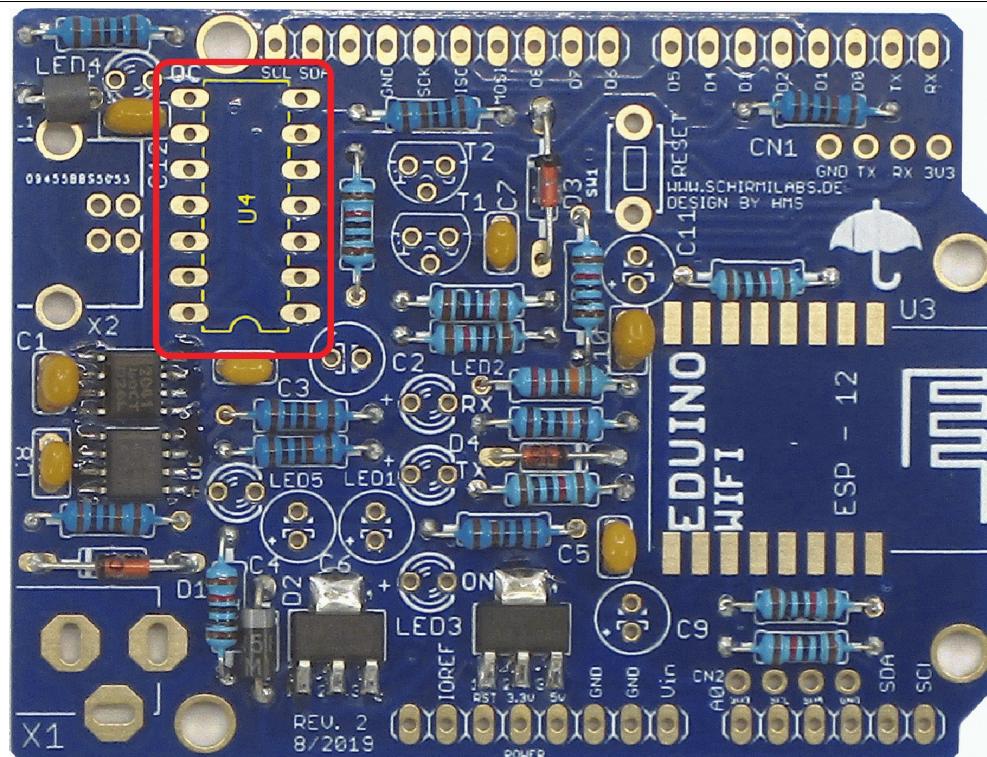
Check polarity !

The black marking
has to be
positioned
upwards.



Step 14:
L1
Ferrit bead



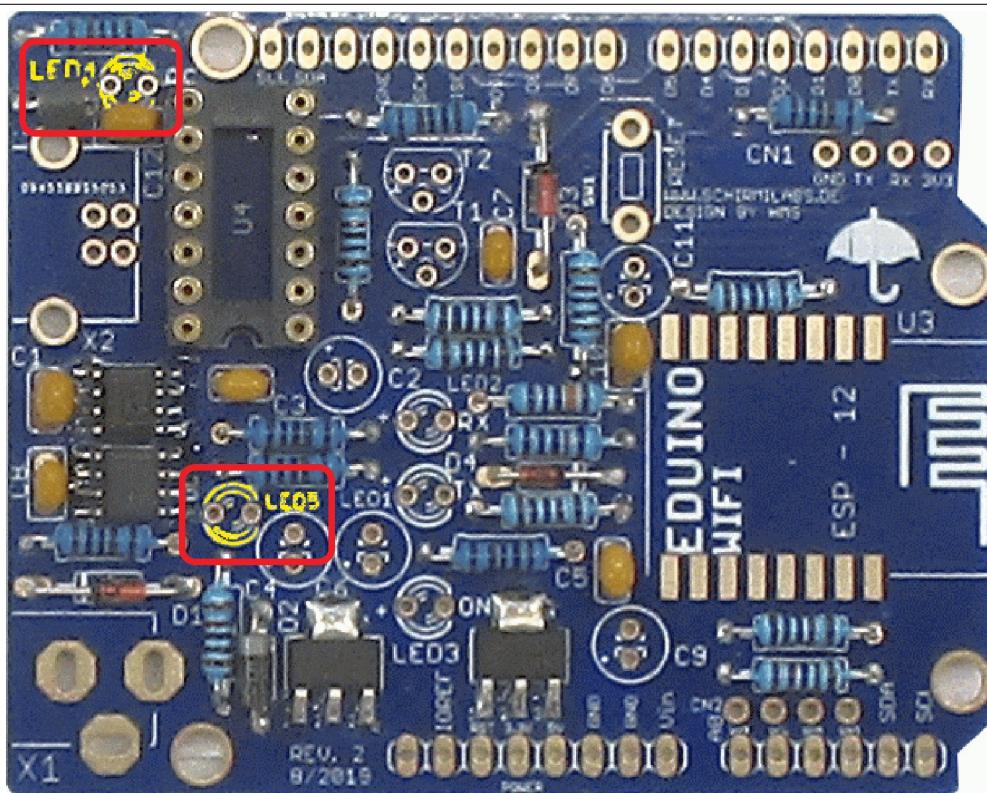
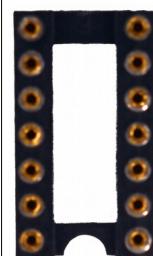


Step 15:

U4

IC socket 14 pins

The notch on the socket has to match the notch as stenciled on the board.



Step 16:

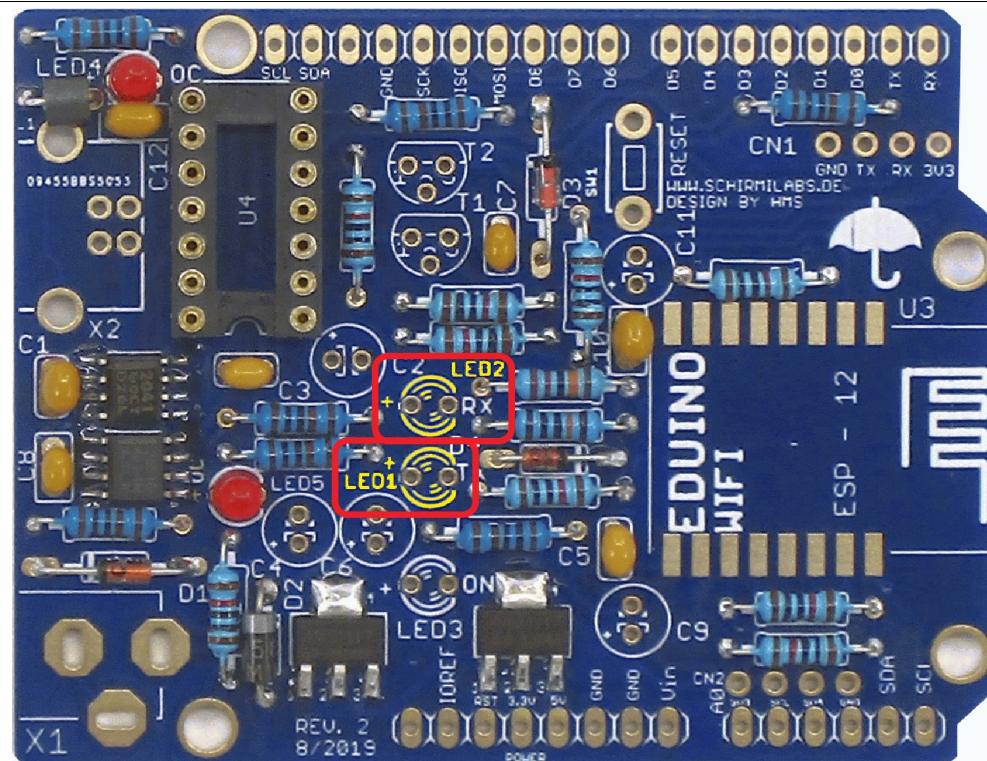
LED4, LED5

LED 3mm red

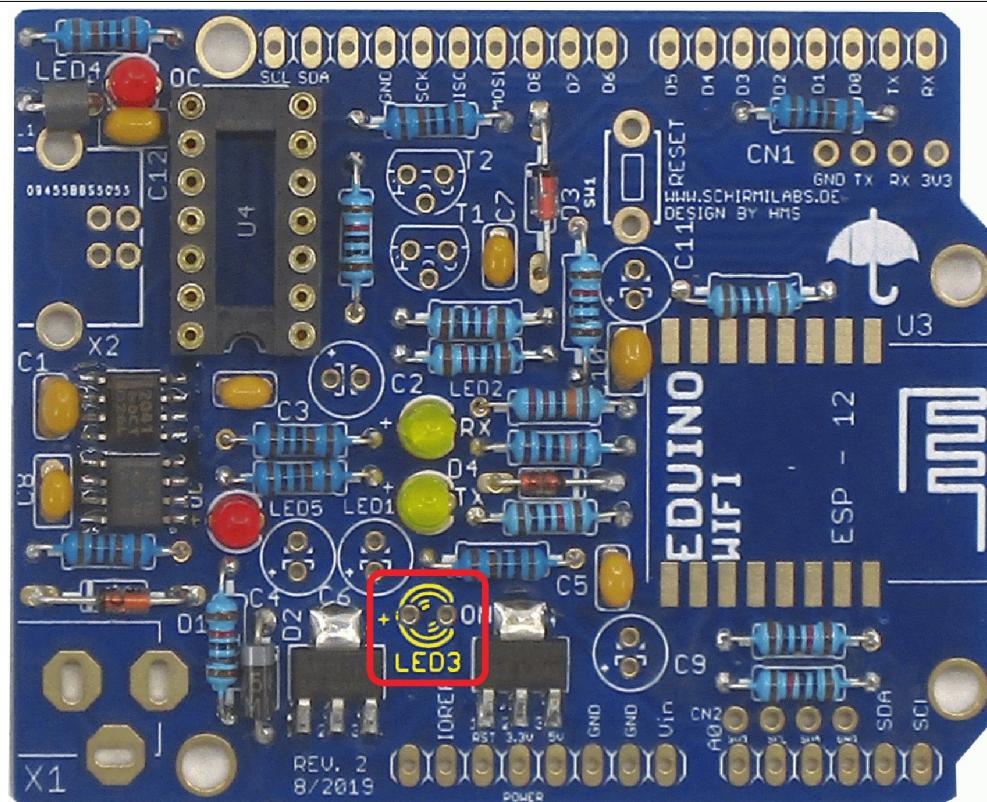
Check polarity !

The long leg has to be positioned on the left side (+ sign on the board)



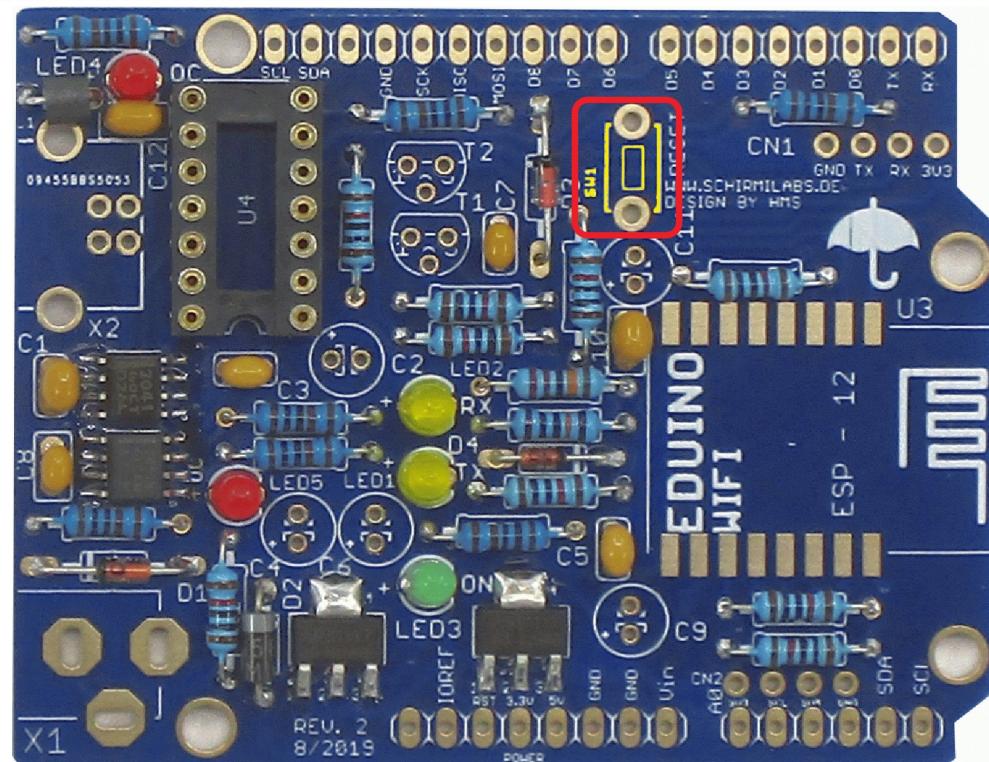


Step 17:
LED1, LED2
LED 3mm yellow
Check polarity !
The long leg has
to be positioned
on the left side (+
sign on the
board)



Step 18:
LED3
LED 3mm green
Check polarity !
The long leg has
to be positioned
on the left side (+
sign on the
board)

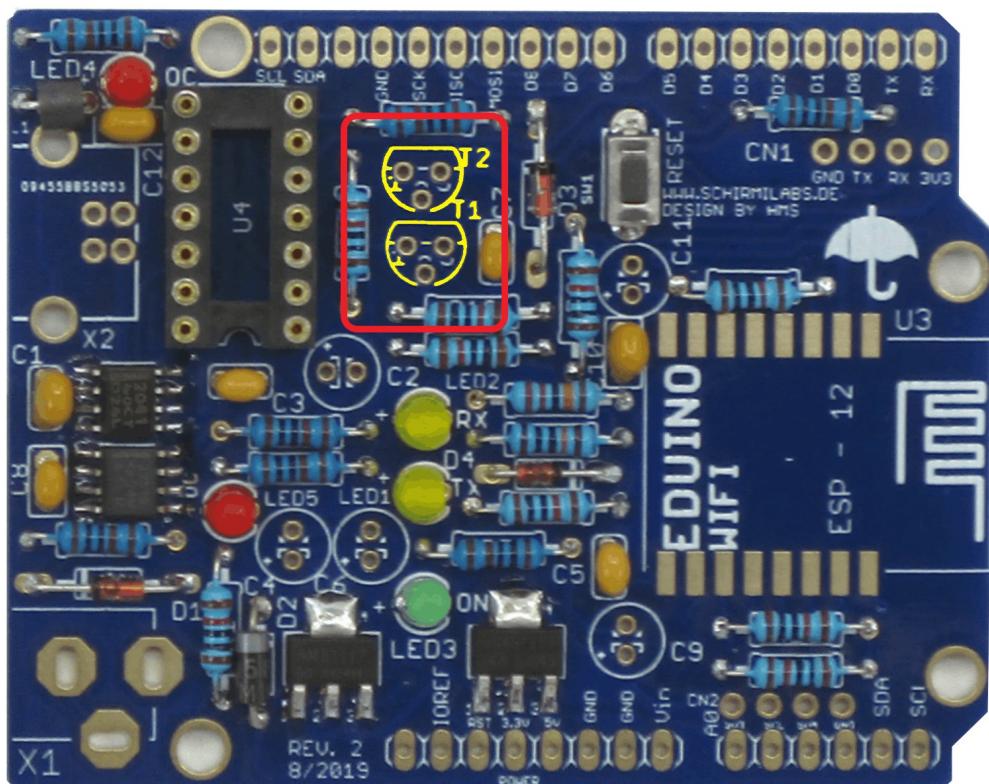




Step 19:

SW1

Tact switch 3x6



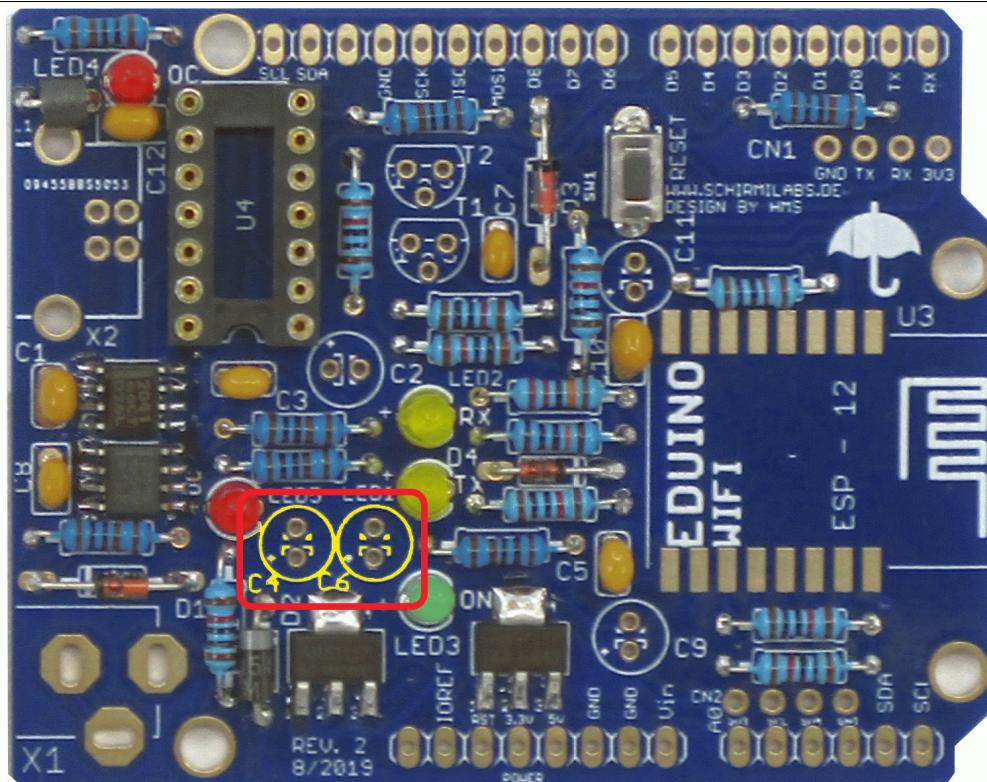
Step 20:

T1, T2

Transistor BC 547

The straight edge of the Transistor should match the straight edge of the stencil.
The middle pin has to be bent backwards before assembly.





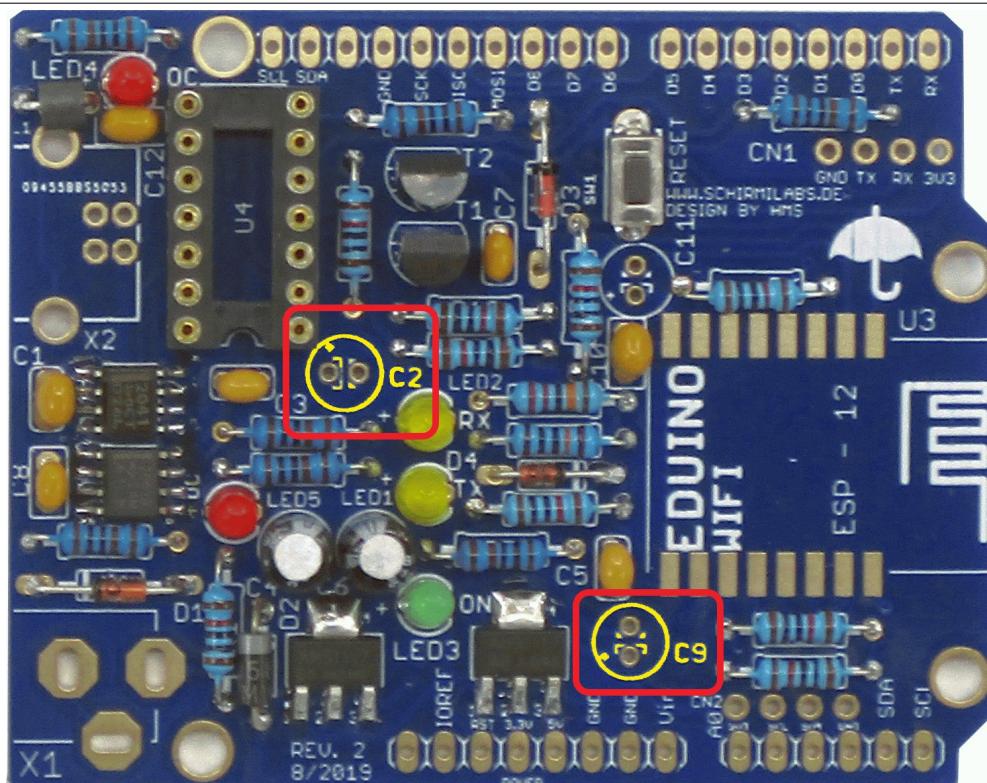
Step 21:

C4, C6

Electrolytic Capacitor 47uF

Check polarity !

The long leg has to be positioned downwards (+sign on the board)



Step 22:

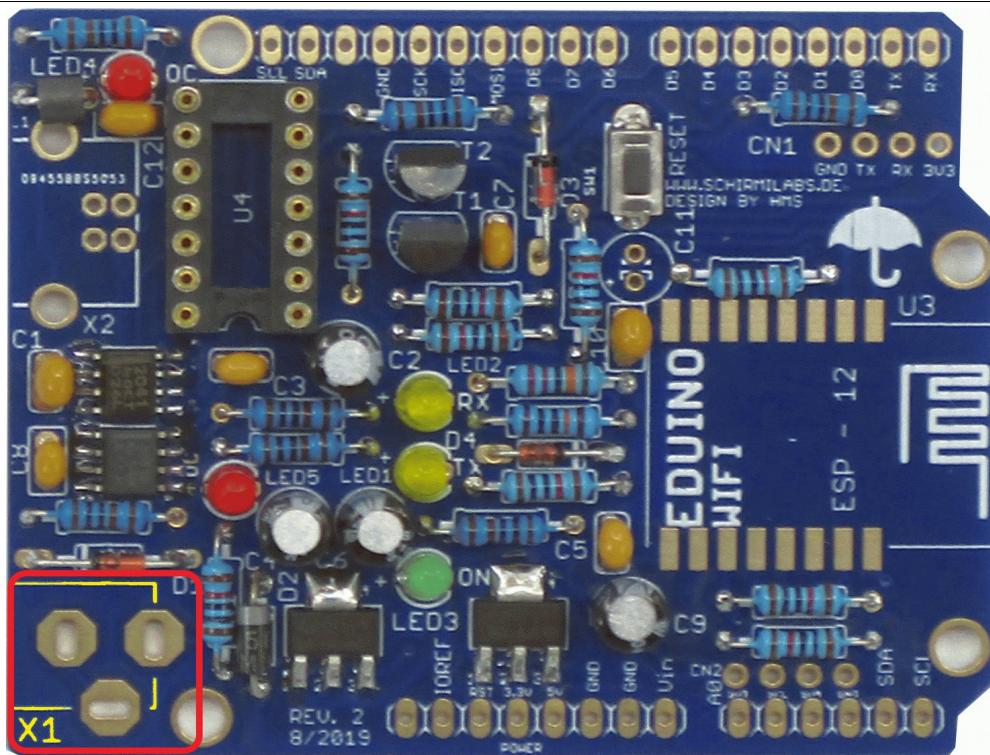
C2, C9

Electrolytic Capacitor 10uF

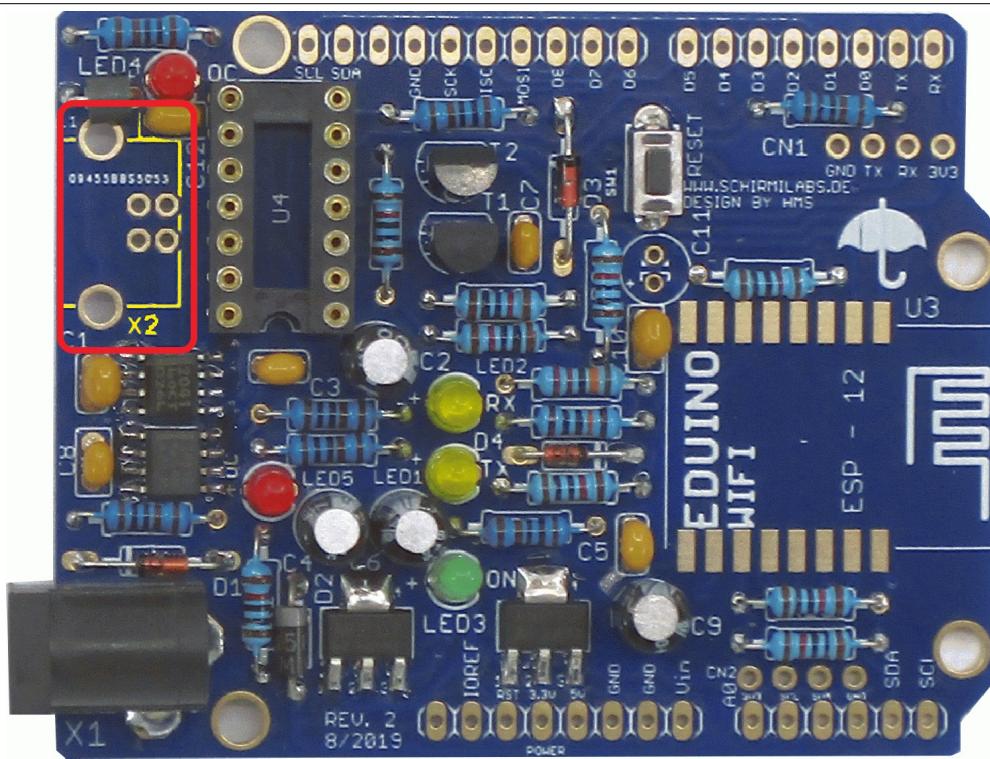
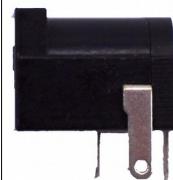
Check polarity !

The long leg has to be positioned on the left side at C2 (+sign on the board) and downwards at C9 (+sign on the board).



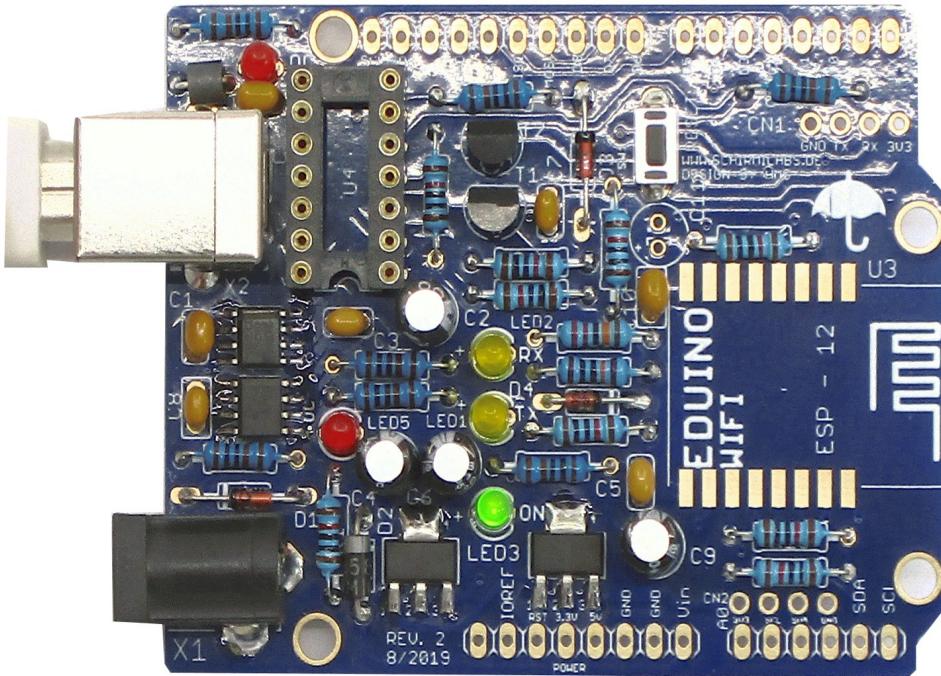


Step 23:
X1
DC Power jack



Step 24:
X2
USB Type B
connector

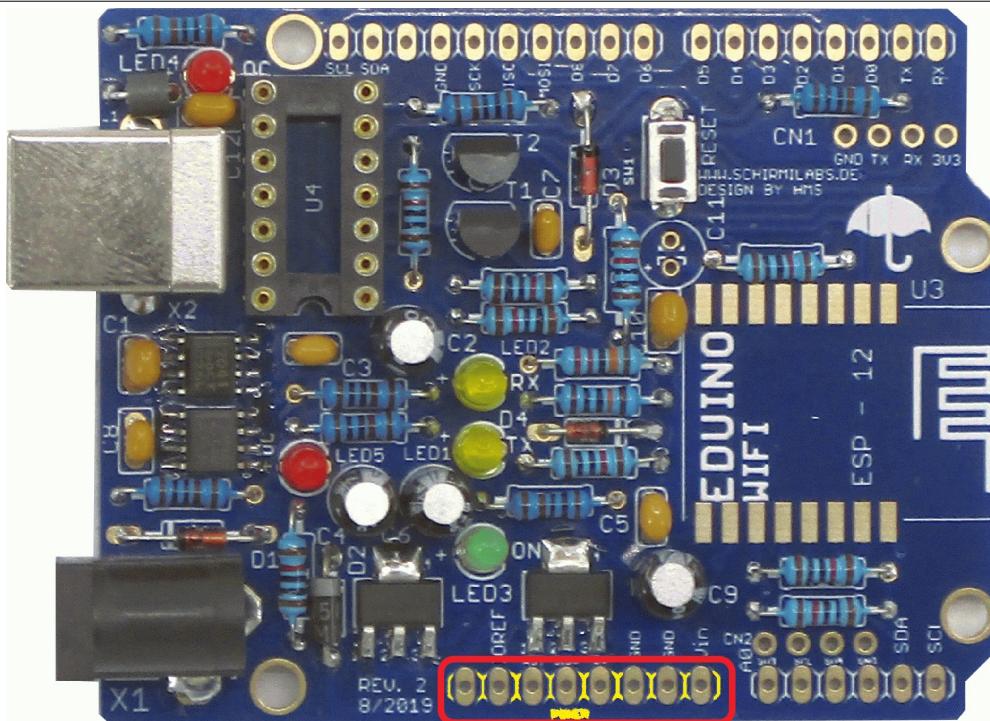




Step 25:

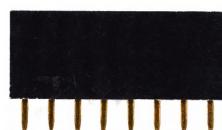
Power supply check

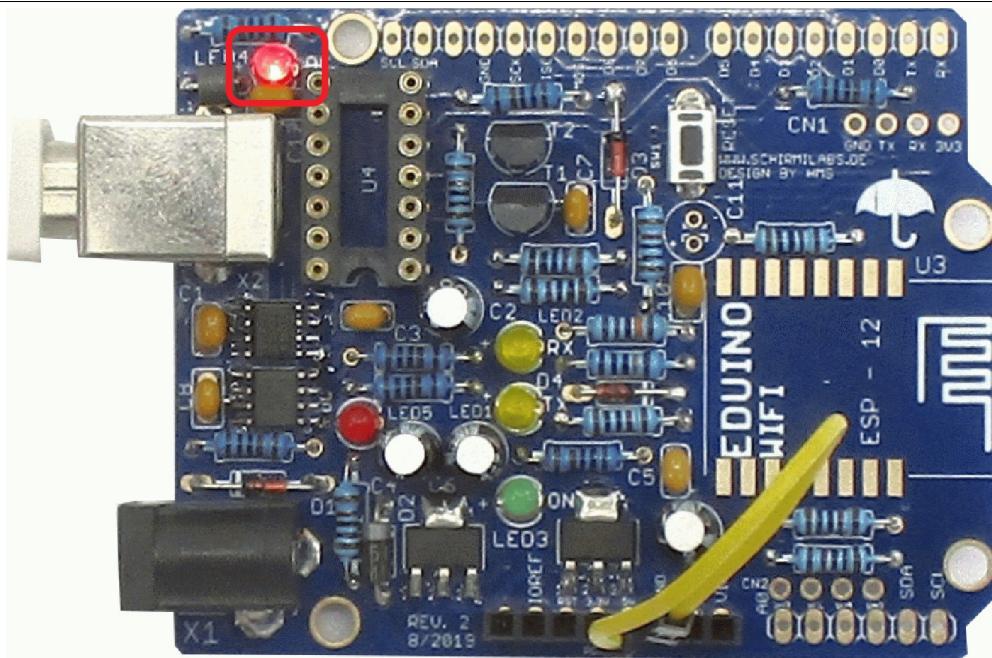
At first, check the bottom side for possible soldering short circuits. Then connect the board with a PC or a USB charger via a USB-B cable. The green LED should now light up.



Step 26:

Female header 8 pins



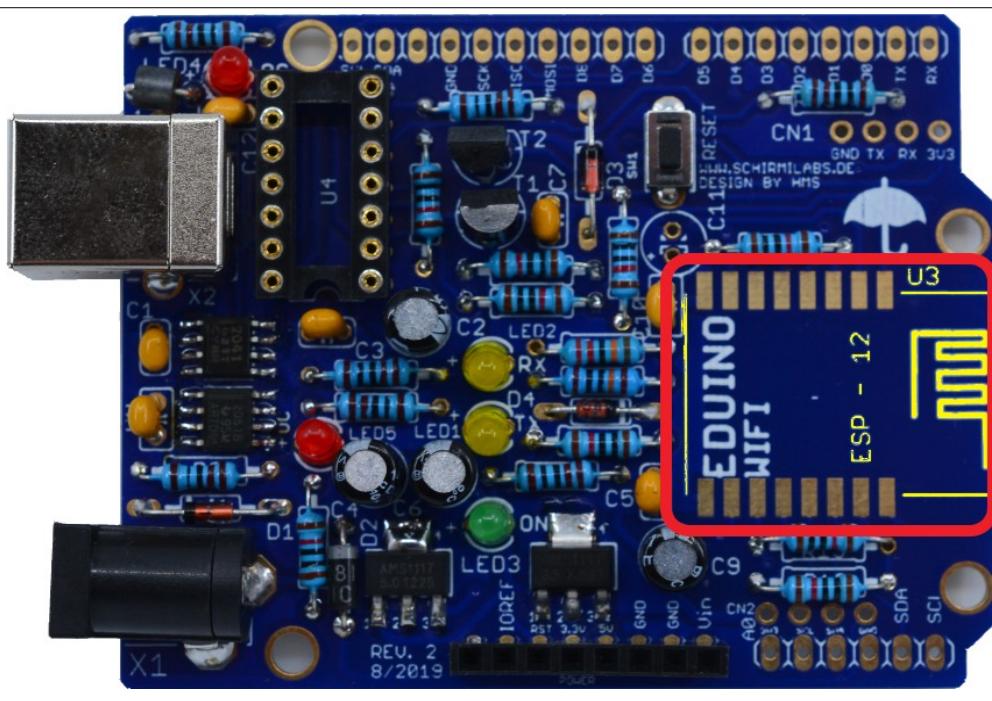


Step 27:

Short circuit test

Connect GND and +5V with a jumper wire cable

Then connect the board with a PC or a USB charger via a USB-B cable. The red LED on top should light up now (Overcurrent indicator)

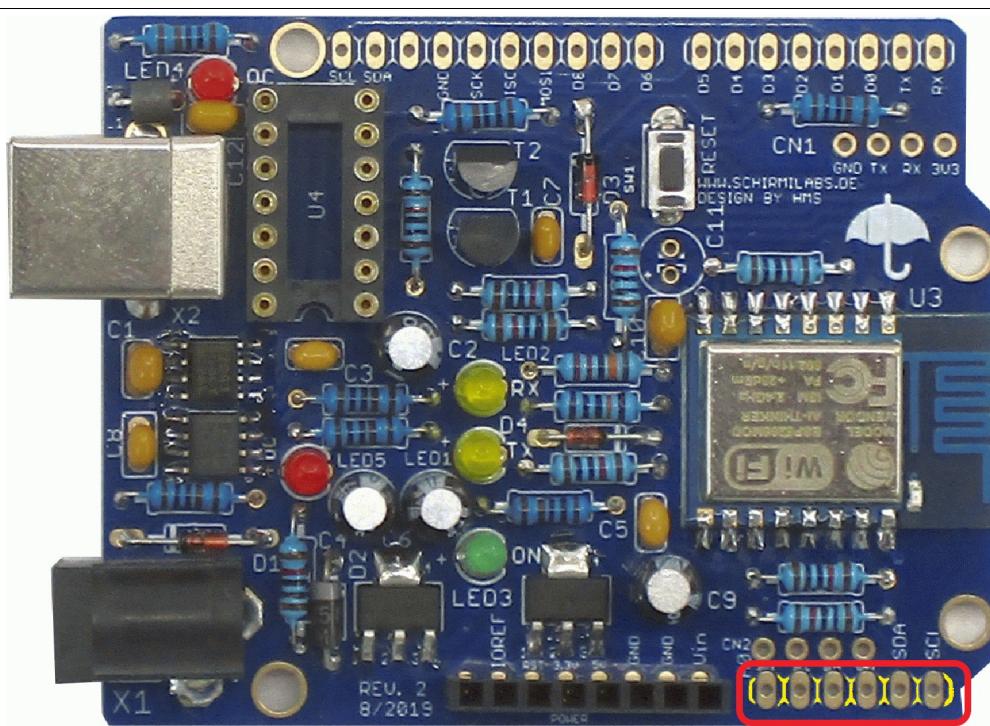


Step 28:

U3

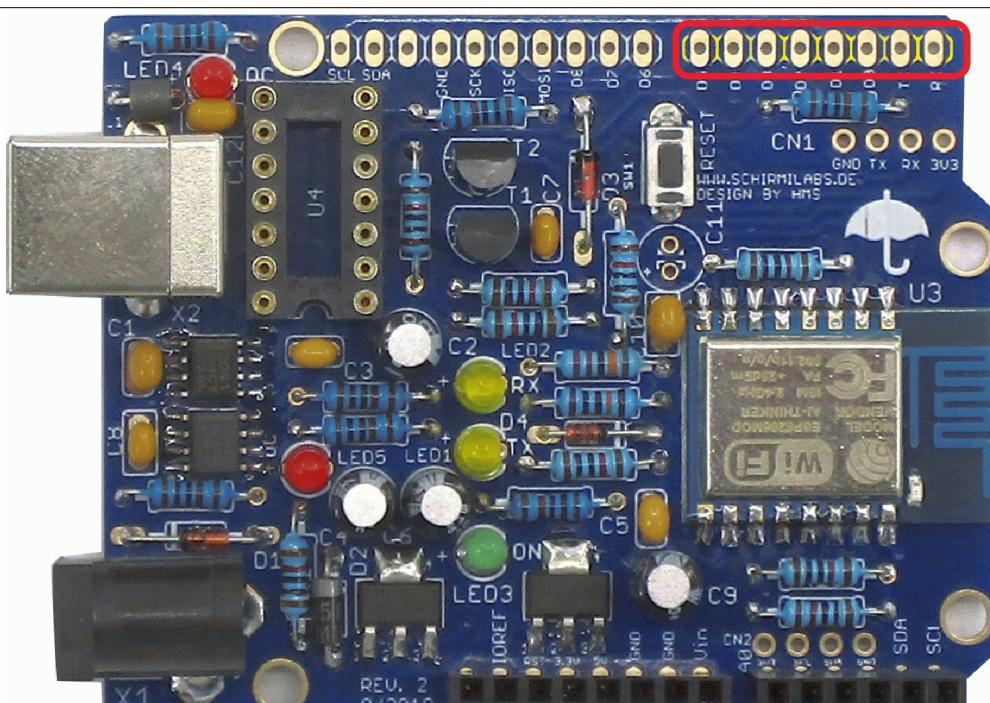
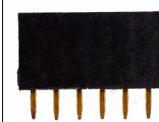
ESP-12 module





Step 29

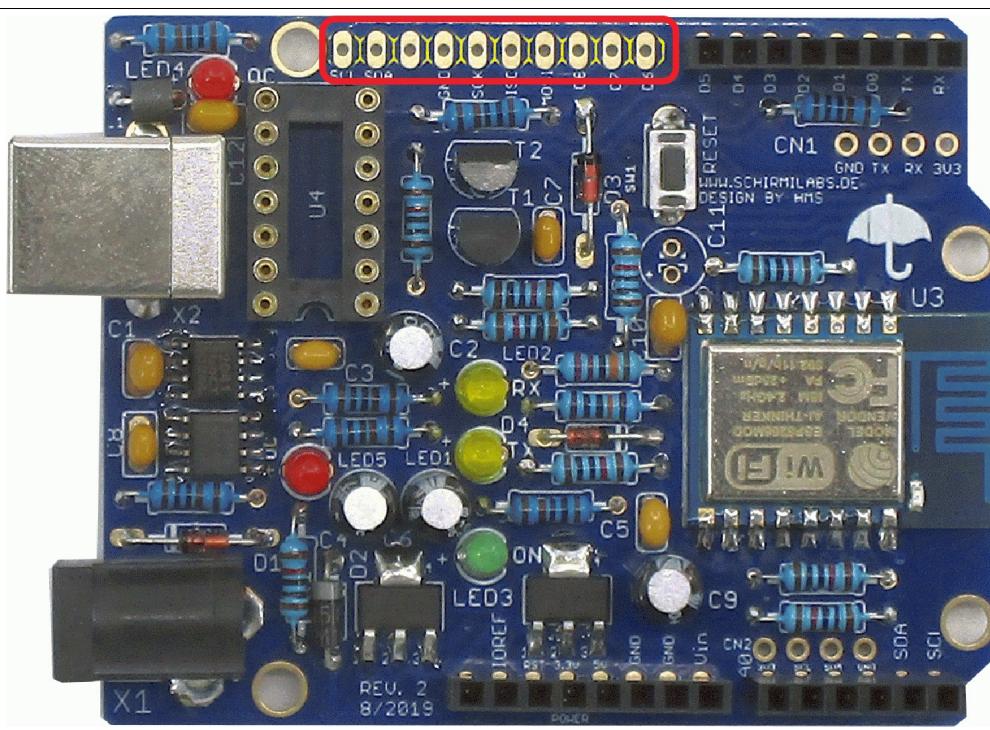
Female header 6 pins



Step 30:

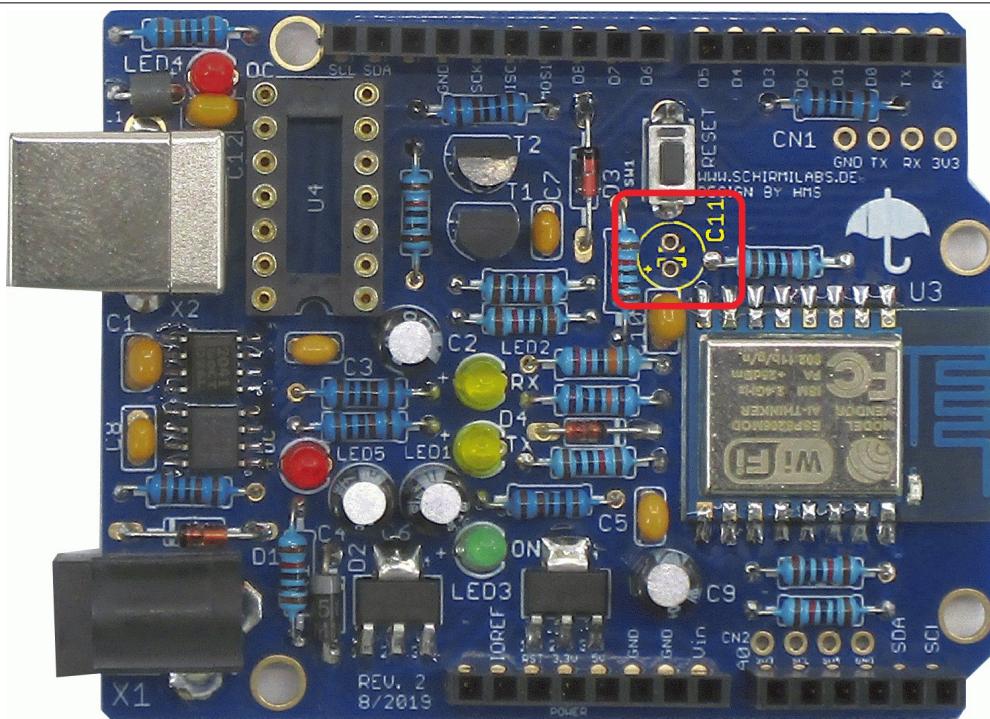
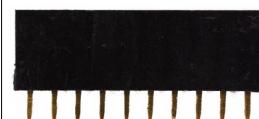
Female header 8 pins





Step 31:

Female header 10 pins



Step 32:

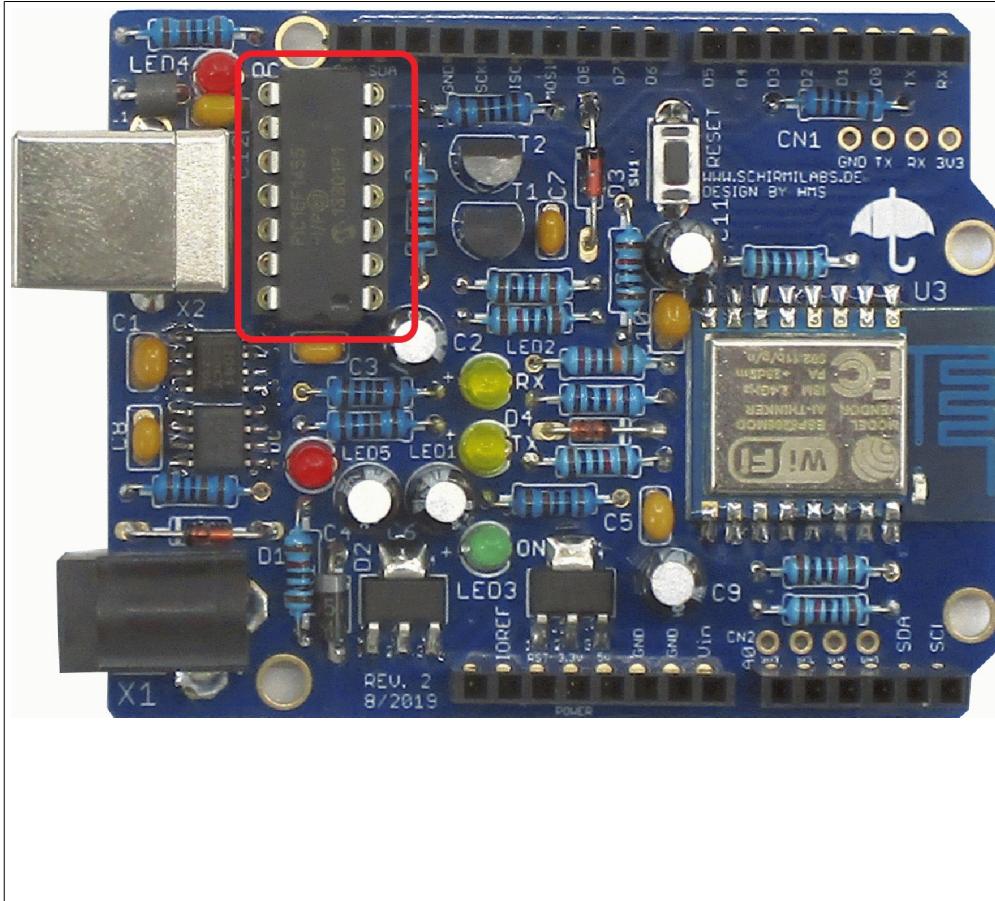
C11

Electrolytic
Capacitor 100uF

Check polarity!

The long leg has
to be positioned
downwards (+sign
on the board)





Step 33:

U4

PIC 16F1455

The IC has to be mounted carefully, with the notch in the IC matching the notch in the socket.

