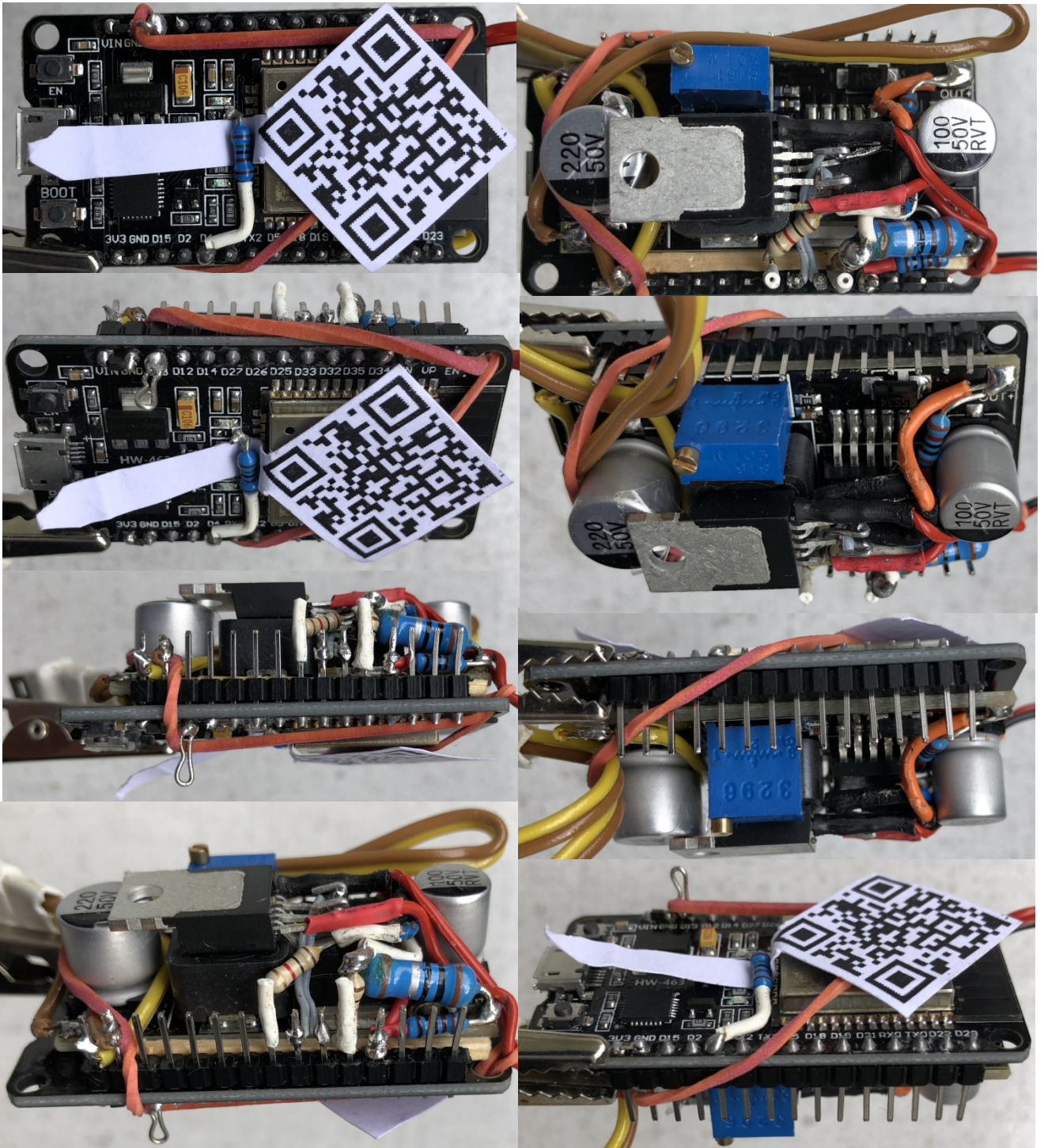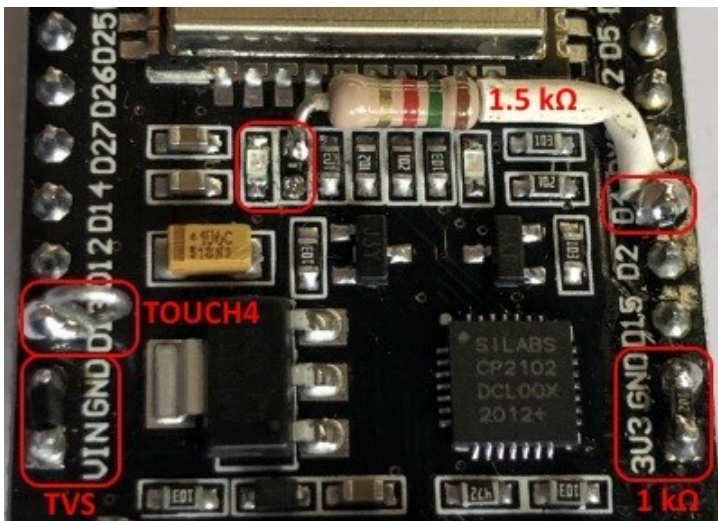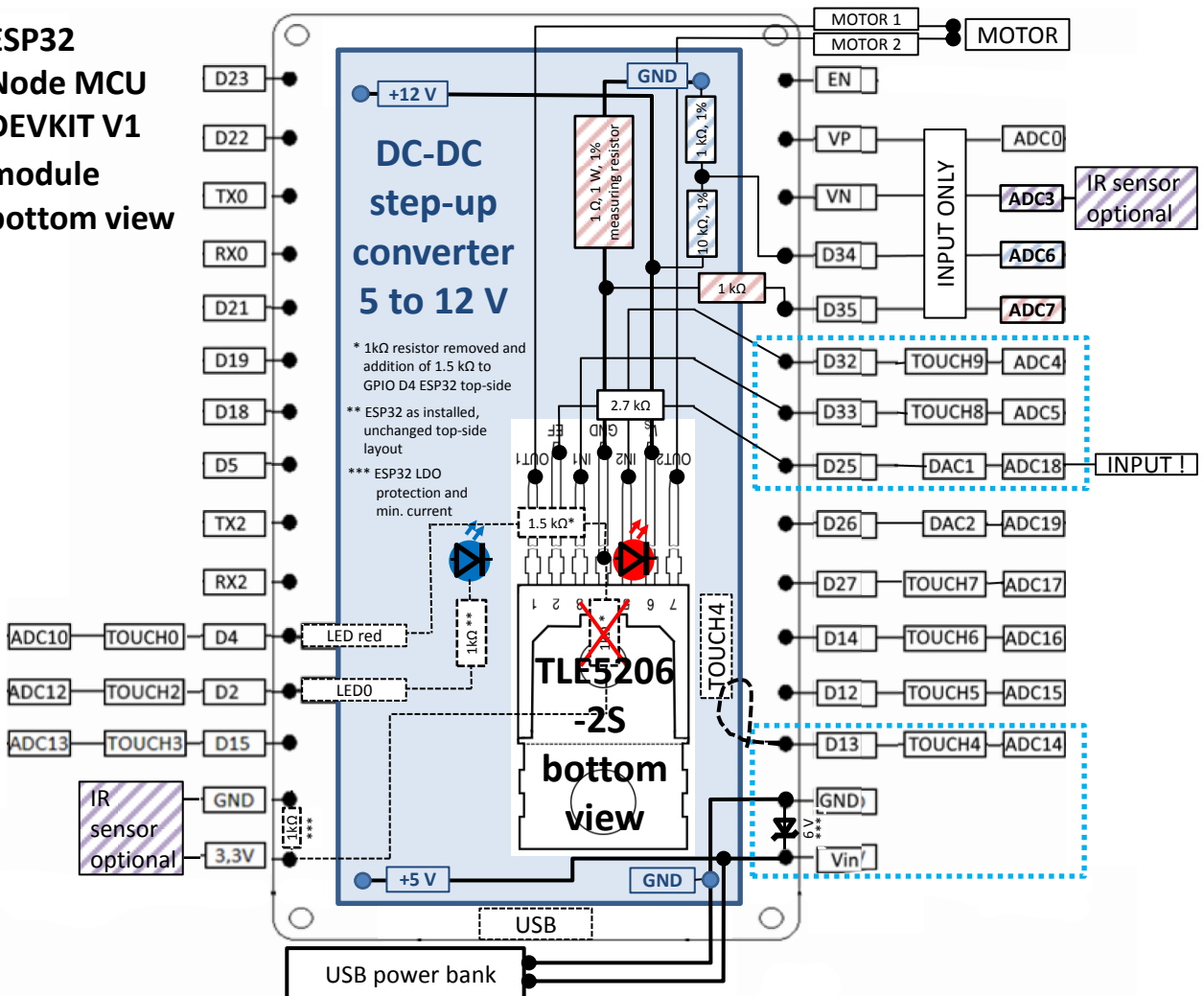# PiedPiperS circuit

ESP32 DevKit V1, step-up converter and TLE5206-2S motor driver, incl. power measuring resistors

ESP32 & TLE5206-2S

integrated mounting and wiring with LDO protection, incl. optional measuring resistors for power data reading

ESP32
Node MCU
DEVKIT V1
module
bottom view

D23
D22
TX0
RX0
D21
D19
D18
D5
TX2
RX2

DC-DC
step-up
converter
5 to 12 V

+12 V
GND
+5 V
GND

1 Ω, 1 W, 1% measuring resistor
1 kΩ, 1%
10 kΩ, 1%
1 kΩ
2.7 kΩ

* 1kΩ resistor removed and addition of 1.5 kΩ to GPIO D4 ESP32 top-side

** ESP32 as installed, unchanged top-side layout

*** ESP32 LDO protection and min. current

1.5 kΩ*
1 kΩ **
LED red
LED0

OUT1 IN1 GND IN2 OUT2
REF
1 2 3 4 5 6 7 8
TLE5206-2S
bottom view

TOUCH4

ADC10 — TOUCH0 — D4
ADC12 — TOUCH2 — D2
ADC13 — TOUCH3 — D15
1kΩ ***
IR sensor optional — GND
3,3V

USB
USB power bank

MOTOR 1
MOTOR 2
MOTOR

EN
VP — ADC0
VN — ADC3 — IR sensor optional
D34 — ADC6
D35 — ADC7

INPUT ONLY

D32 — TOUCH9 — ADC4
D33 — TOUCH8 — ADC5
D25 — DAC1 — ADC18 — INPUT !
D26 — DAC2 — ADC19
D27 — TOUCH7 — ADC17
D14 — TOUCH6 — ADC16
D12 — TOUCH5 — ADC15
D13 — TOUCH4 — ADC14
(GND)
6 V ***
Vin

1.5 kΩ
TOUCH4
TVS
1 kΩ

ESP32 Node MCU DEVKIT V1 module top view:
- power LED modification by 1.5 kΩ resistor to D4 pin
- TOUCH4 pin wire loop
- TVS diode 6 V and load by 1 kΩ resistor at 3.3 V for LDO protection

PiedPiperS , version 191,
GNU GPL v3, J. Ruppert 2021-05-13,
https://github.com/jorail/PiedPiperS

Reflective IR sensor optional

ESP32 Pins

+VDD
3.3 V

33 KΩ   27 ... 47 KΩ   external pull-up resistor

GPIO 39
Analog INPUT
ADC1_Ch3
low / high
< 0.5 V / > 0.8 V

reflective IR detector HSDL-9100

Kath.   Kath.

BC238C
BC547B

220 Ω

I_F = 10 mA

GND