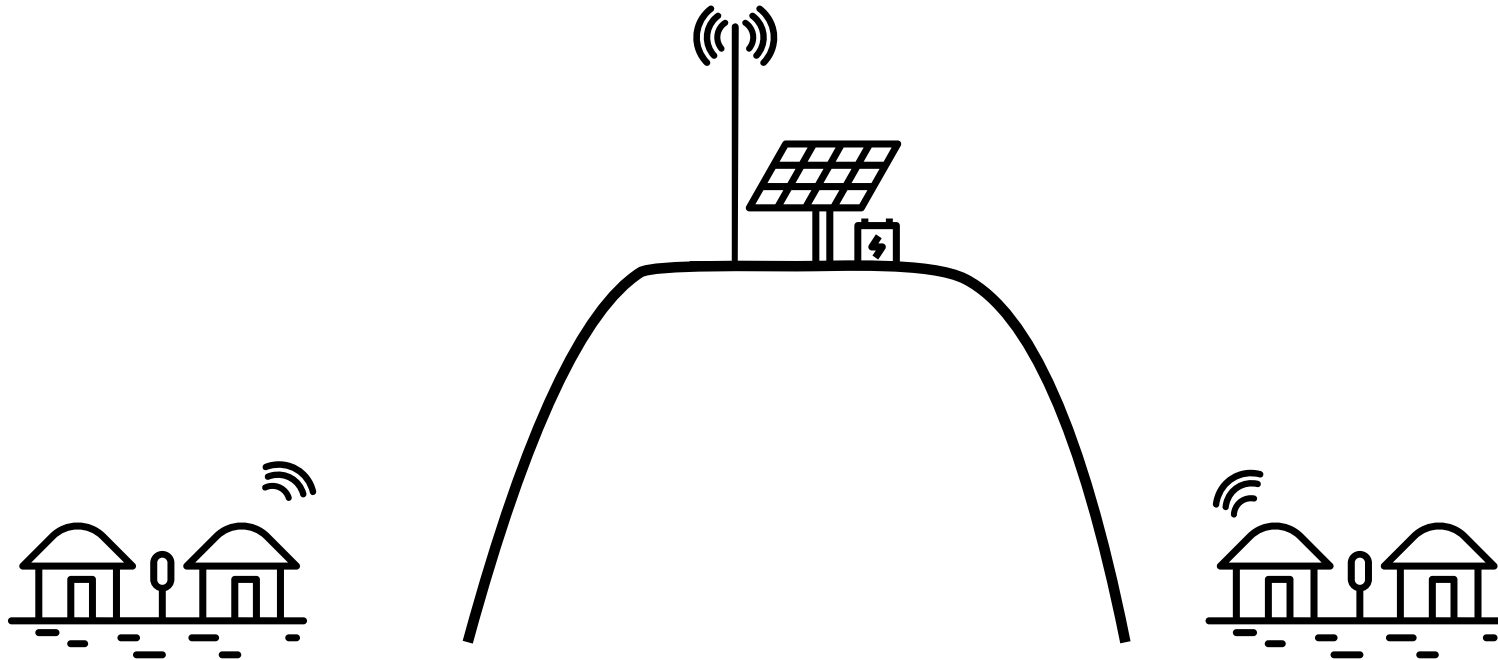


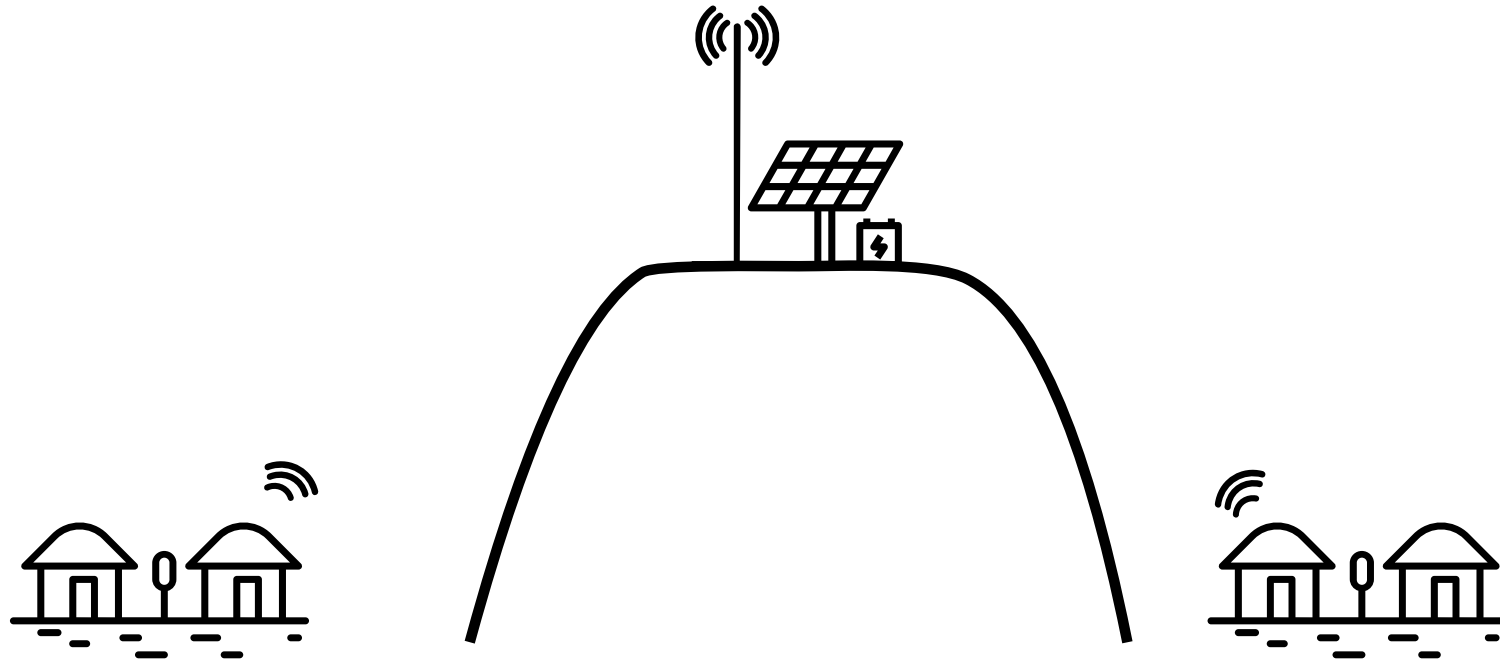
Freifunk-OpenMPPT Development

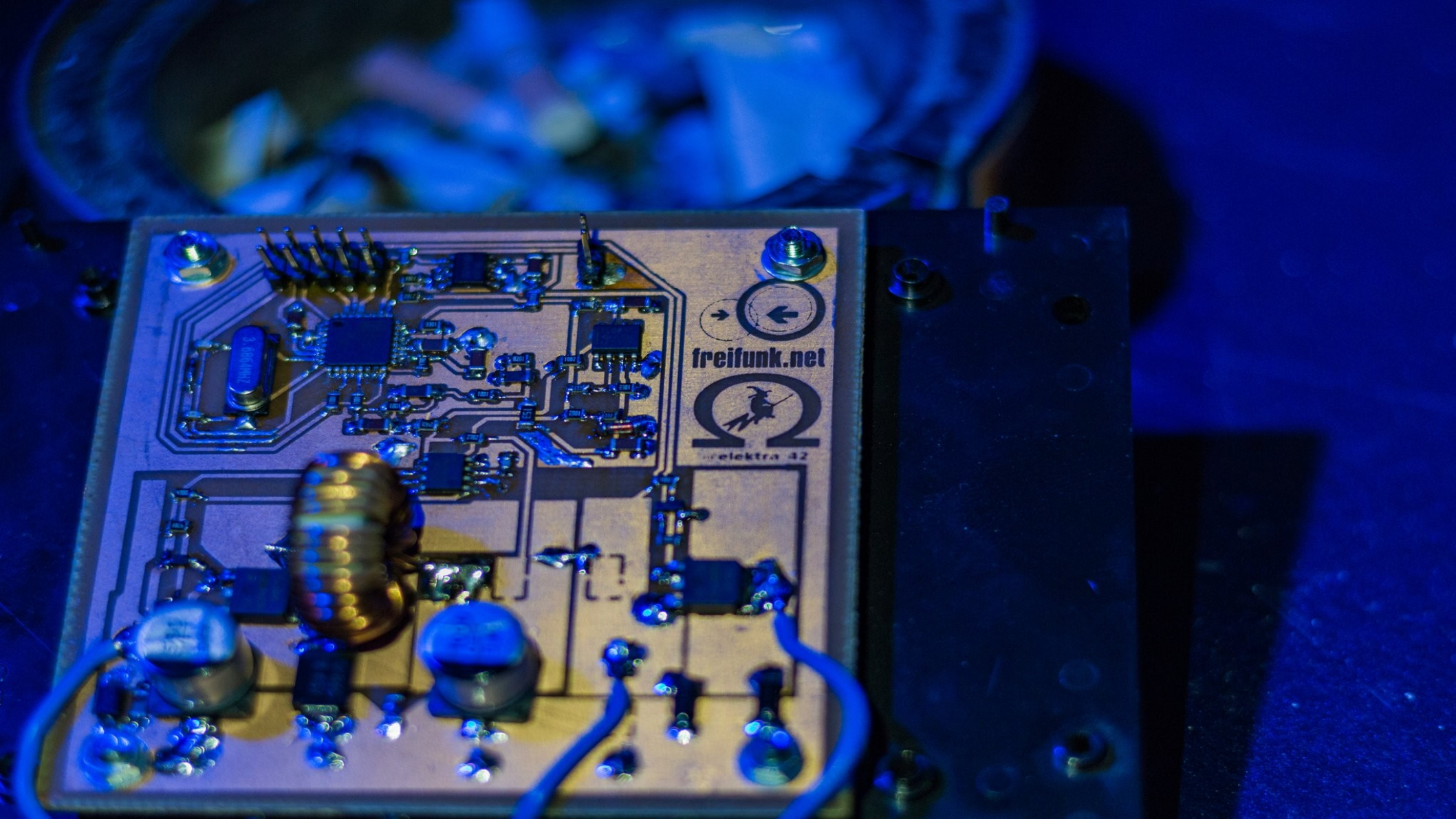
2017 – 2023



2017 Mark1 FF-OpenMPPT

Atmega 8-bit MCU and 50 Wp





freifunk.net

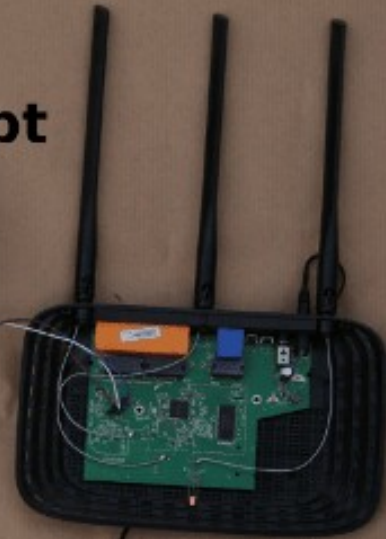


elekra 42

Solarmodul



OpenMppt



Router

Sicherung



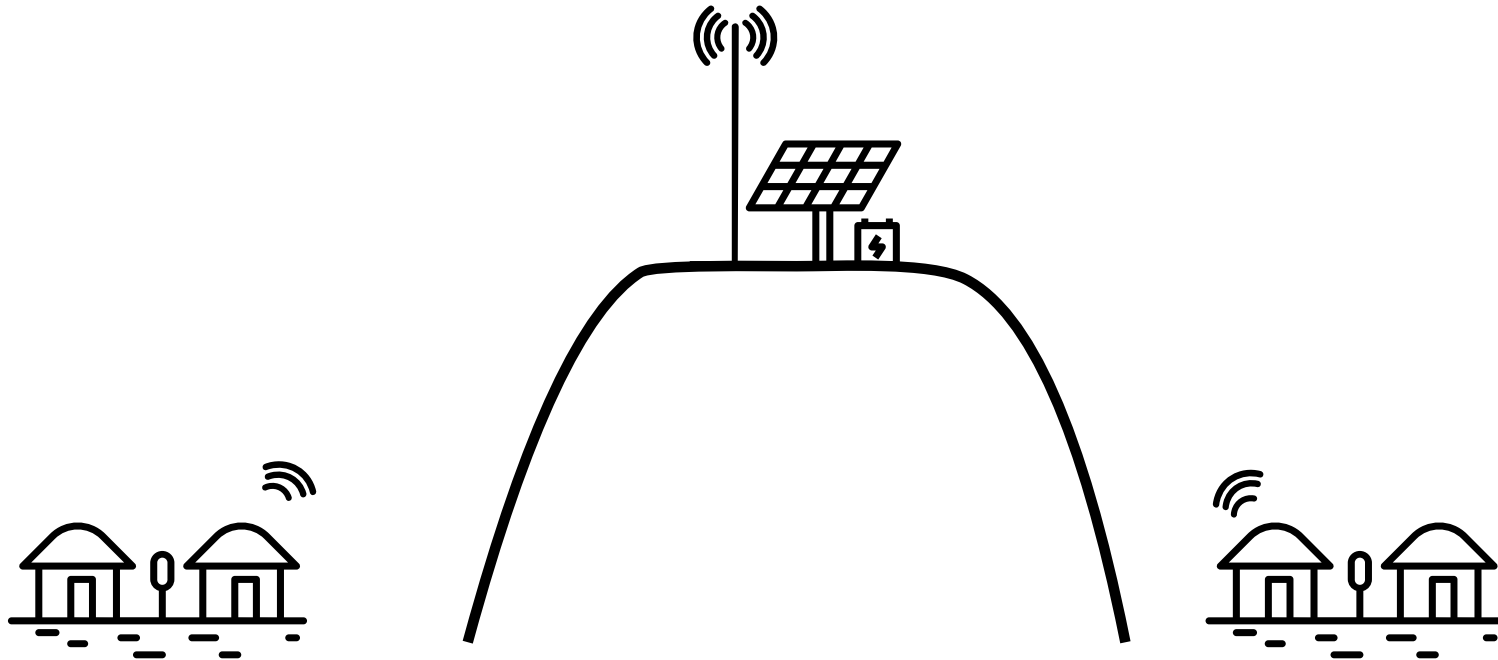
Kabel zum Temperatursensor

Akku



2018 ISEMS

Independent solar energy mesh system





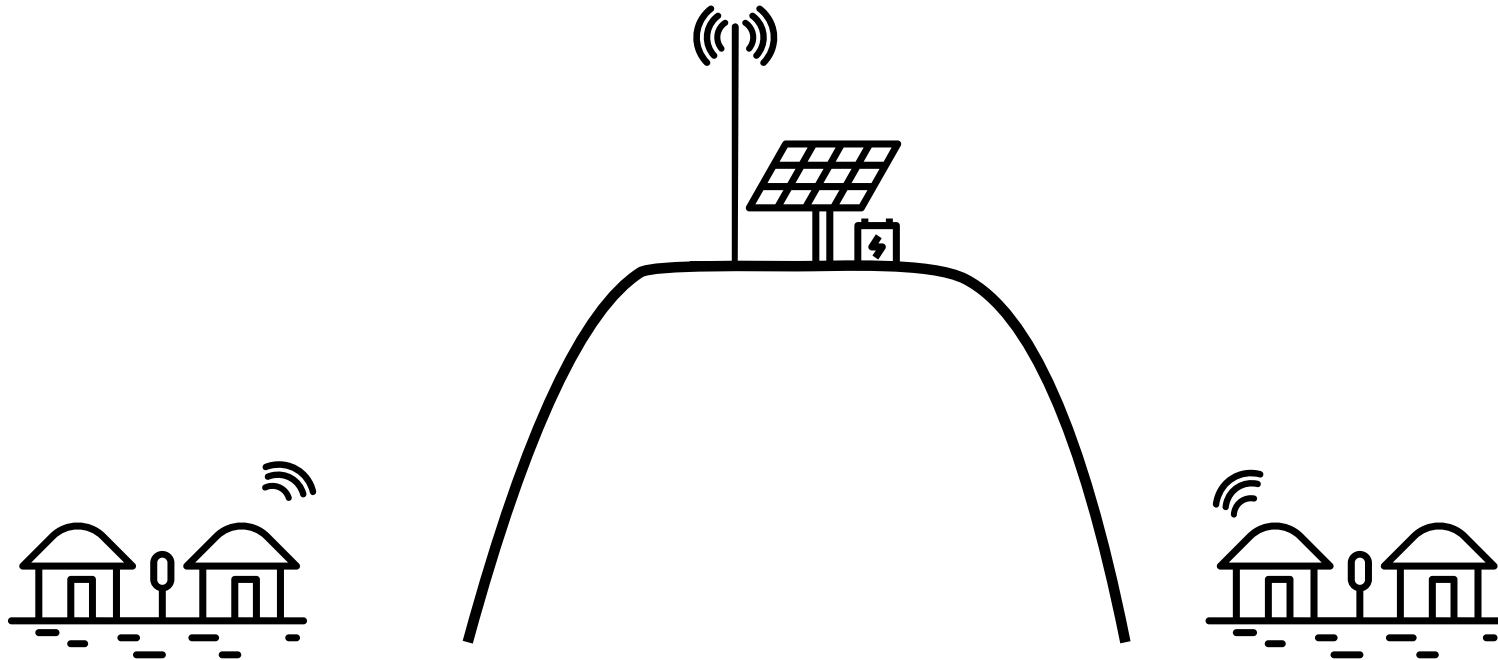
ISEMS Management

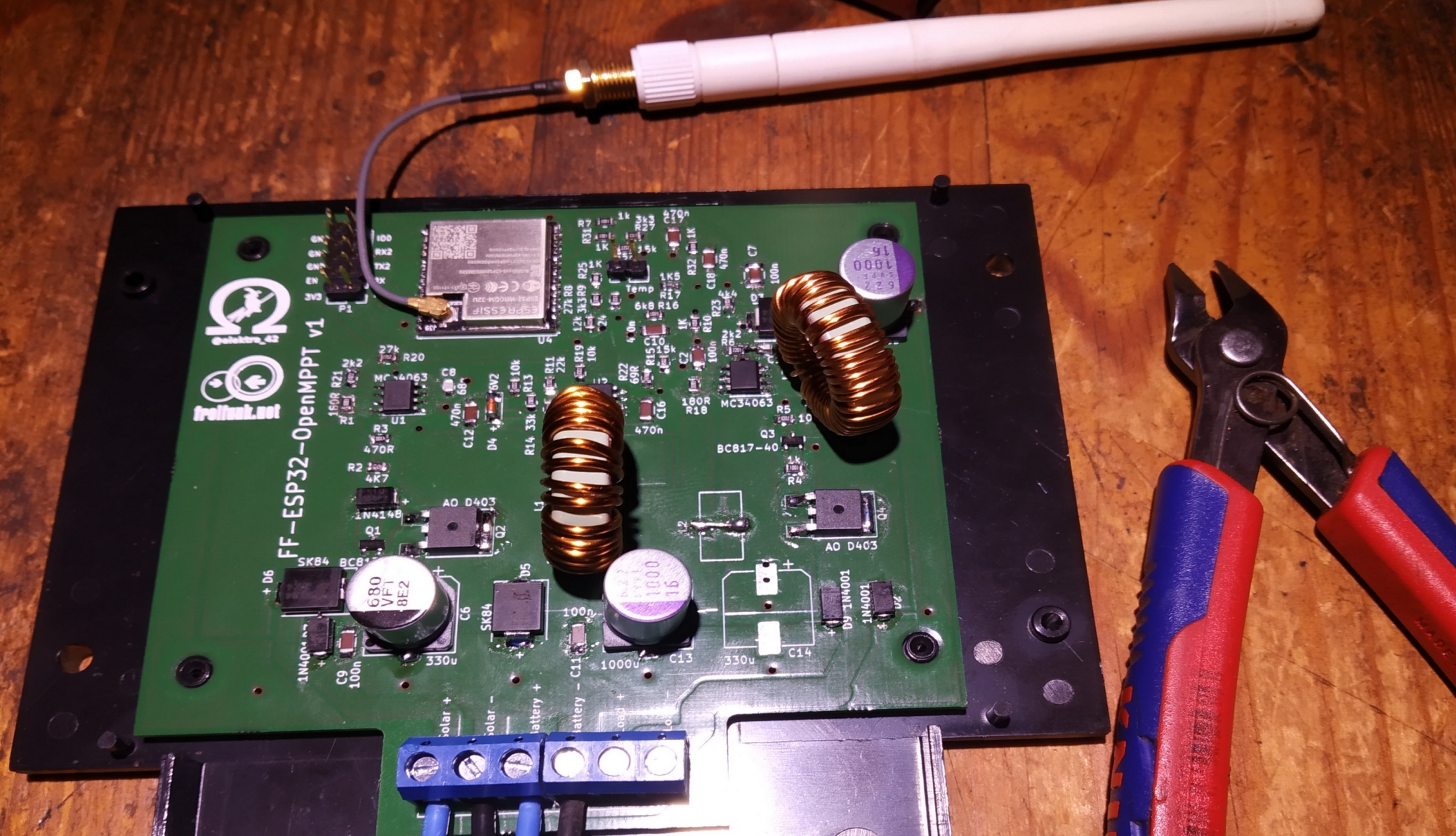
Elektra-Dach

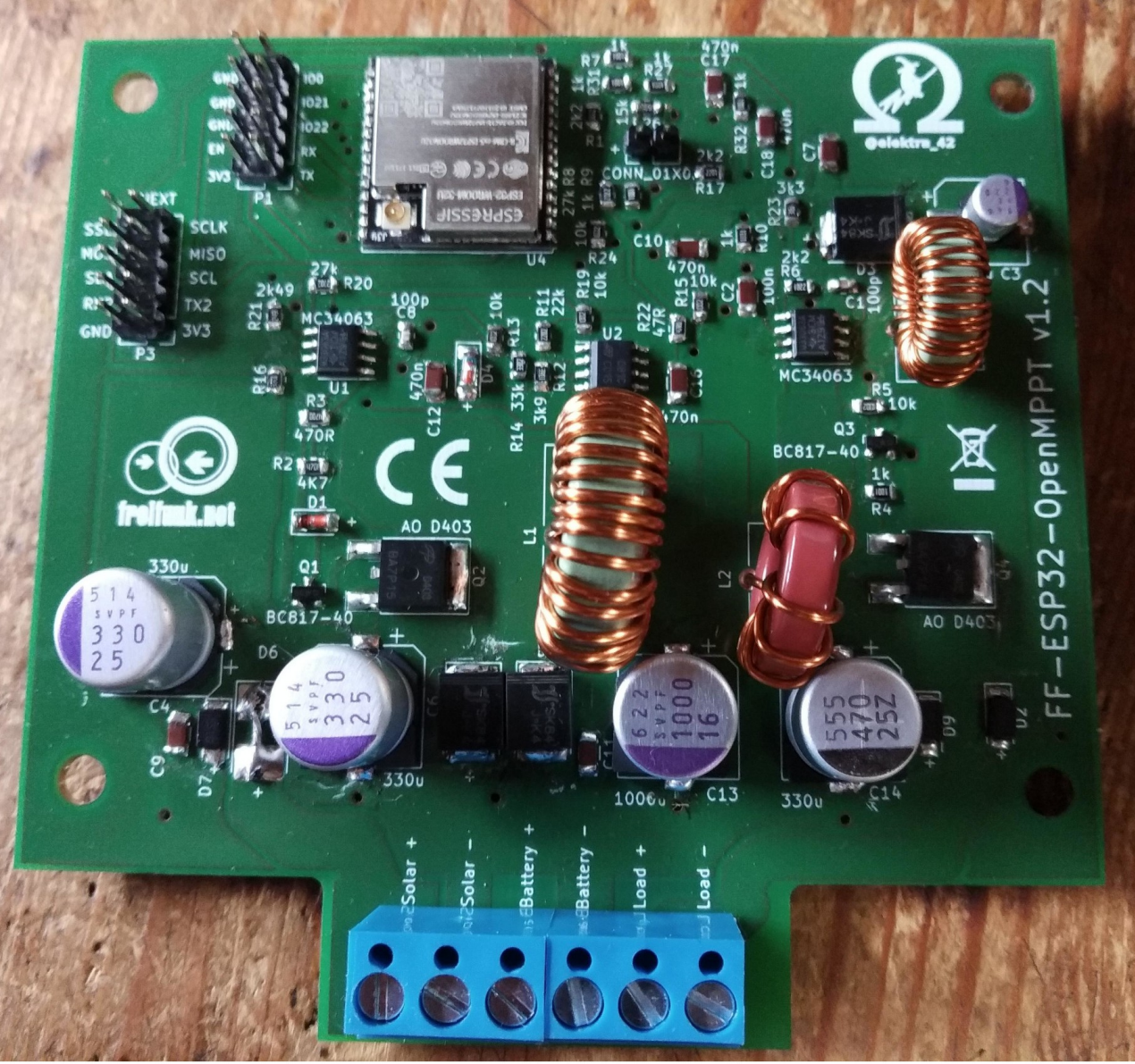
- ✓ The battery is charging. The current charge is approximately 90%
- ✓ The battery temperature is OK (21 °C).
- ✓ Communication with solar controller successfully established.
- ✓ The module is sending data. The latest transmission was 6 hours ago.

[Show charts](#)

2019 Mark2 FF-ESP32-OpenMPPT

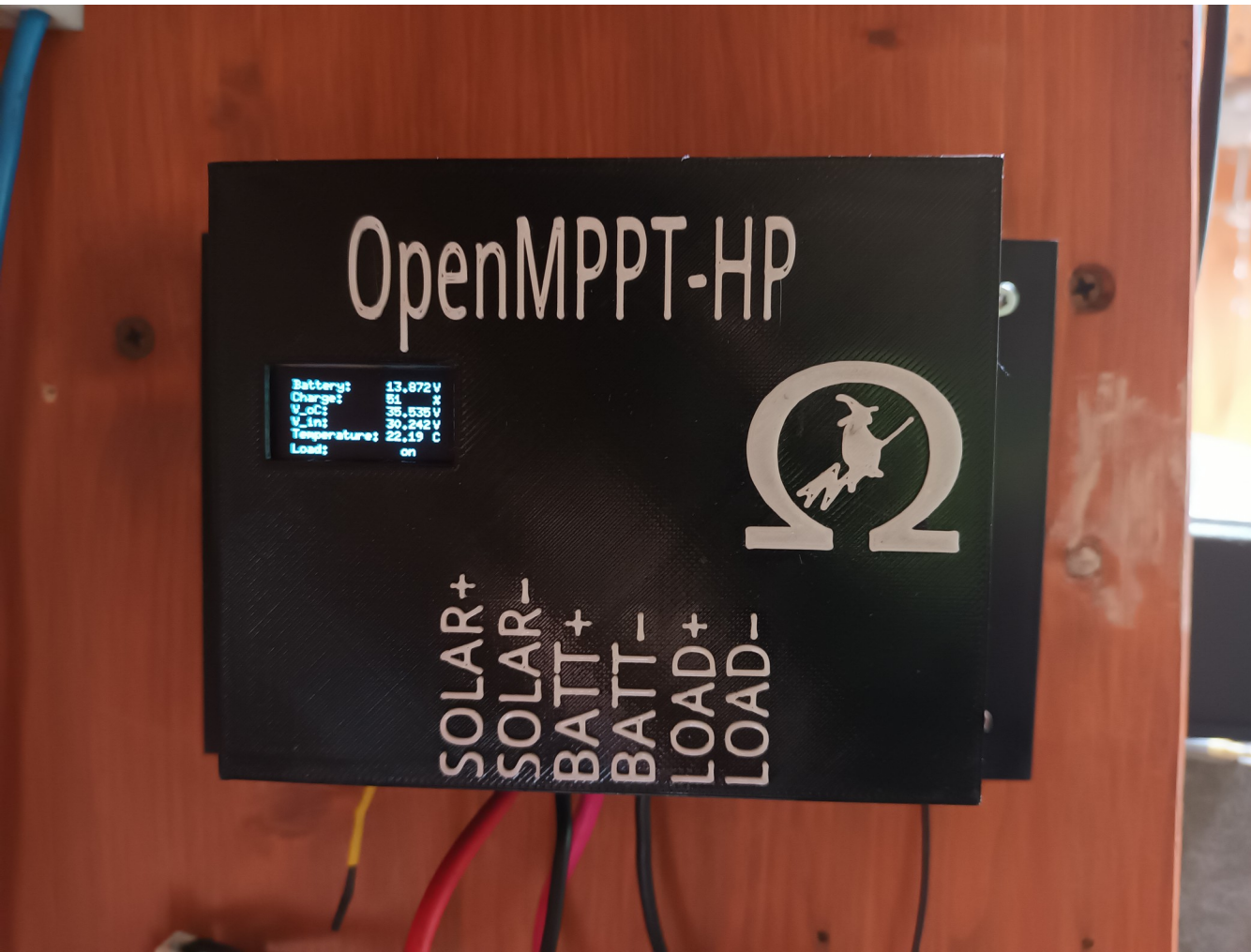






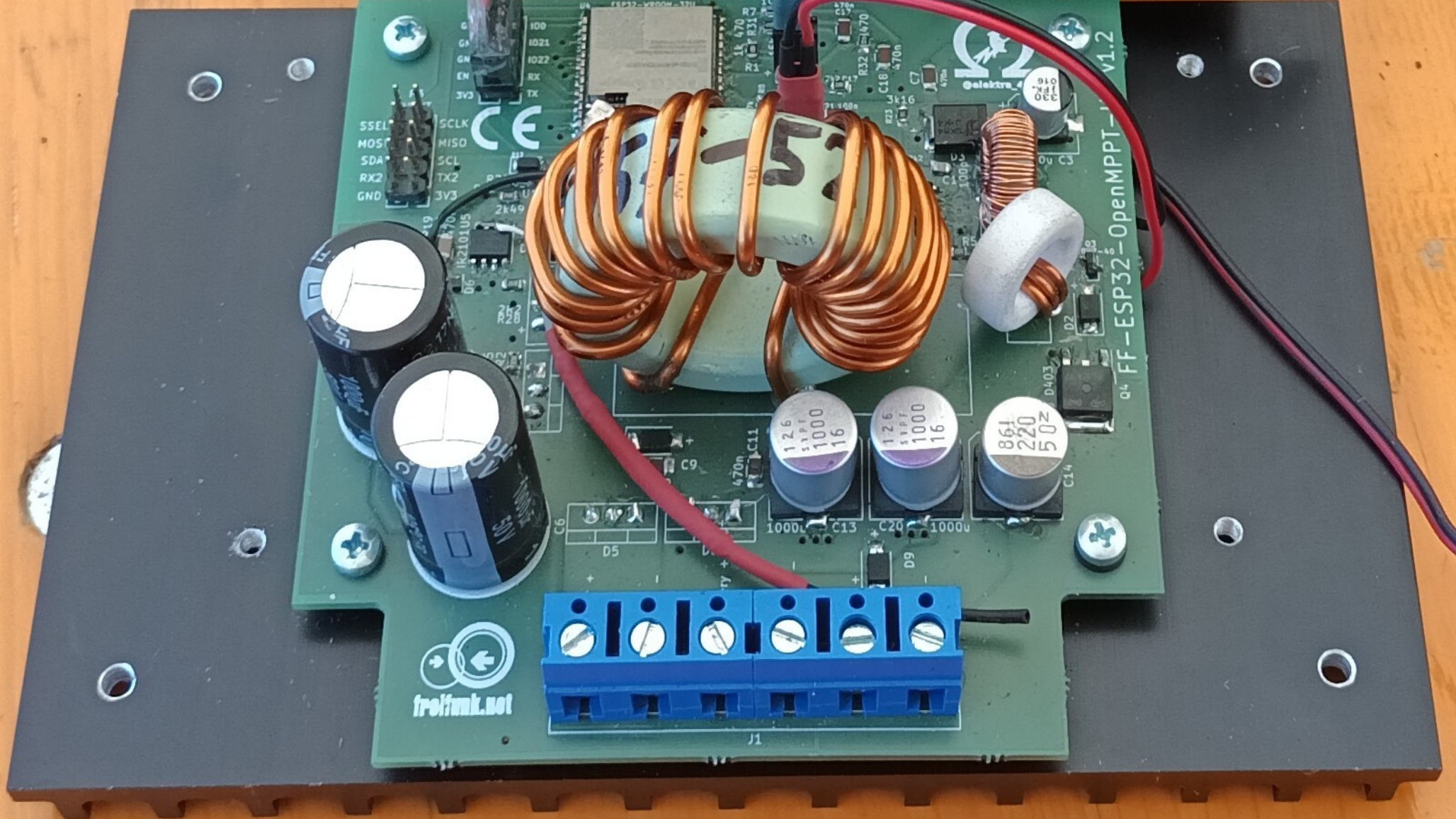
Folks asked for
more GPIOs
and more
power -->
Upgrade to
v1.2 /
100 Wp

2022/23 Mark3 FF-OpenMPPT-ESP32-HP



Folks keep on asking for more power...

Development for 400 Wp and $V_{oc} < 50$ Volt



freifunk.net

FF-ESP32-OpenMPPT-V1.2

SSEL
MISO
SDA
RX2
GND

SCLK
MISO
SCL
TX2
3V3

06 JK2101U5

126
51PF
1000
16

126
51PF
1000
16

864
220
50Z

J1

GND

EN

3V3

2k49

100V

470n

D5

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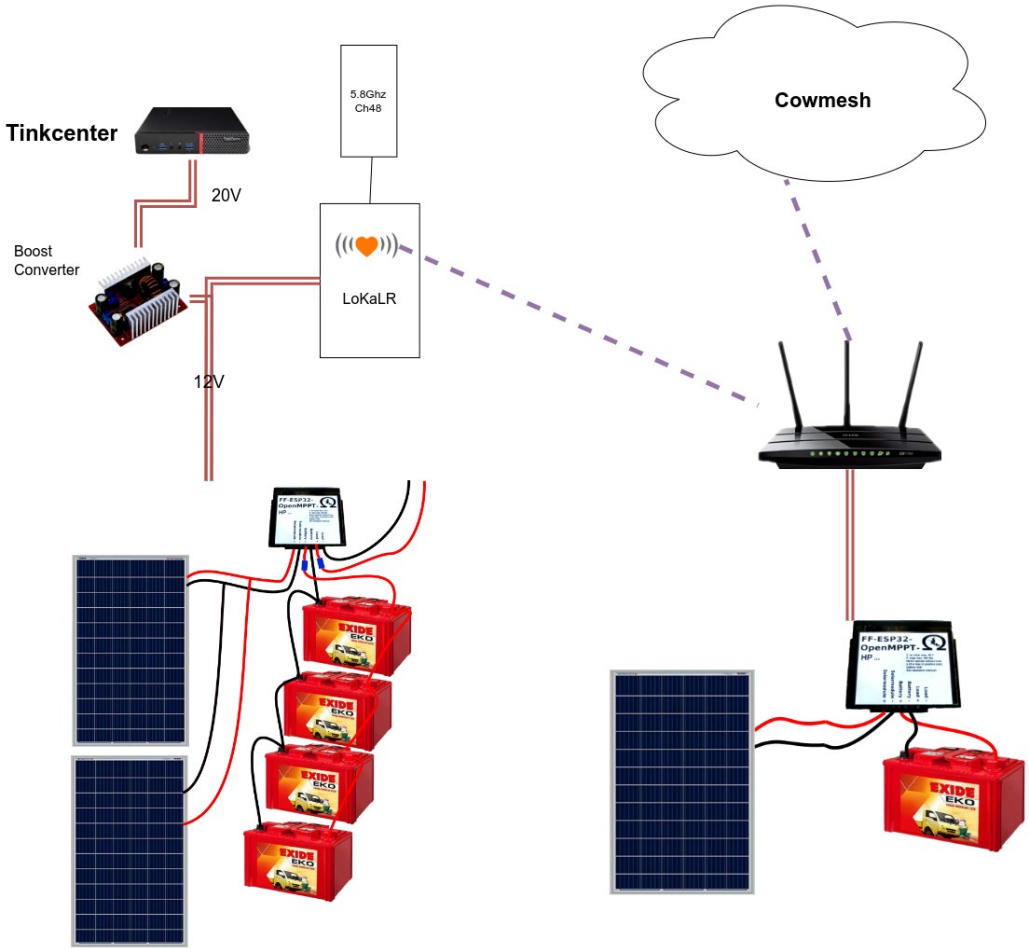
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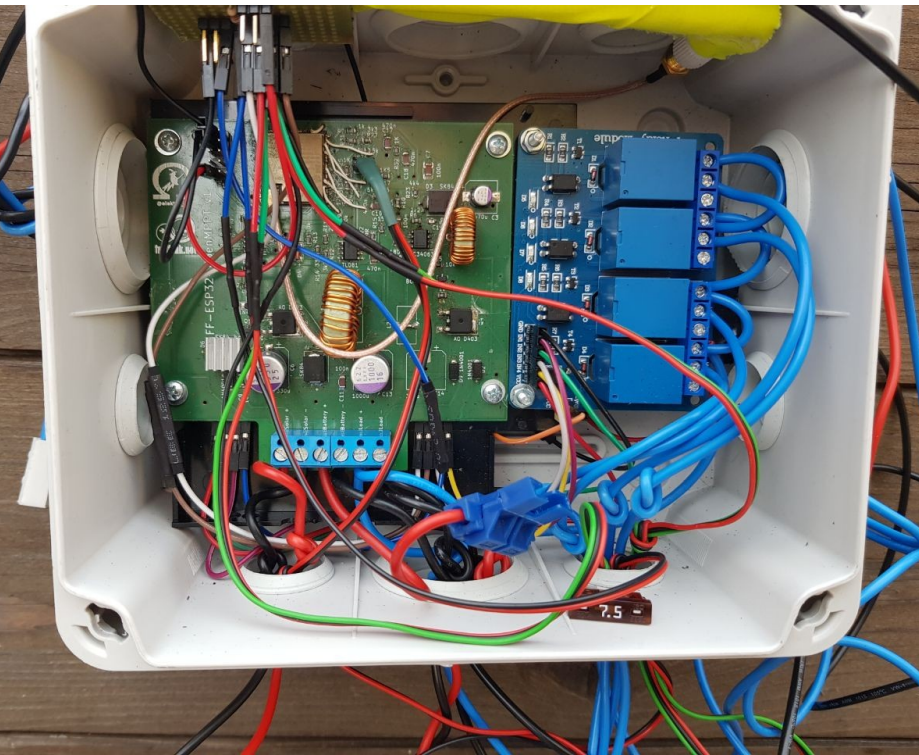
Anthill India





2022/2023: OSPIT prototype

(Open Solar Powered Irrigation Tool
– based on OpenMPPT-ESP32)



1

192.168.10.10



[Control](#) [Reboot](#) [Configuration](#) [Routing](#) [Help](#) [CSV-Log](#) [Nonce](#)

Independent Solar Energy Mesh

Status of Solar-Irrigation-Prototype1

Local time: 1970-01-01 01:23:07 DST:0
Summary: Fully charged. Healthy.
Humidity sensor 1: 69%
Humidity sensor 2: 73%
Tank fill gauge: 97%
Charge state: 100%
Next scheduled reboot by watchdog in: 31 minutes
Battery voltage: 14.455 Volt
Temperature corrected charge end voltage: 14.1 Volt
Battery temperature: 25°C
Battery health estimate: 100%
Power save level: 0
Solar panel open circuit voltage: 0 Volt
MPP-Tracking voltage: 0 Volt
Low voltage disconnect voltage: 11.9 Volt
Rated battery capacity (when new): 18 Ah
Rated solar module power: 50 Watt
Unix-Timestamp: 1387 (local time)
Solar controller type and firmware: 1.2 ESP_2.0
Latitude: 52.52
Longitude: 13.4
Status code: 0x700
Free RAM in Bytes: 111672
Uptime in seconds: 471
Heatsink temperature: 0°C



elektrad.info

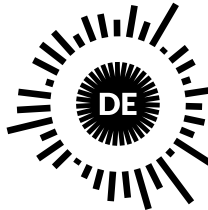
isems.de / app.isems.de

<https://github.com/elektra42/freifunk-open-mppt> (Mark 1)

With kind support and funding by:



Bundesministerium
für Bildung
und Forschung



DEUTSCHLAND
FOUNDATION
КОМГЕДЕС
ОБЕИ



OpenWrt
Wireless Freedom