SETTING UP YOUR BADGE

The config is stored in the SPIFFS. If you delete the config or power on the badge for the first time, a new config will be created.

1. Power on the Badge.
Put the power switch in down position.

2. Visit the displayed IP.
Configure the Badge to your desire.

3. Download more ROMs.
Visit the ROM store for more cool ROMs.

4. Contribute!
Build your own ROMs and hacks and share them!

Your Badge is not booting? Try the following:

1. Have you tried turning it off and on again?
2. Put the USB Select switch in the upper position.
3. Cover the IR receiver from sunlight.

If all that doesn't work, contact the Badge team.

README.md

The GPN-Badge comes with a precharged Lithium Ion Battery. Be sure to follow the safety warnings:

Do not connect the positive terminal and negative terminal of the battery to each othe (such as wire).

Do not carry or store the Badge together with necklaces, hairpins or other metal objects.

Do not pierce the battery with nails, strike the battery with a hammer, step on the battery or otherwise subject it to strong impacts or shocks.

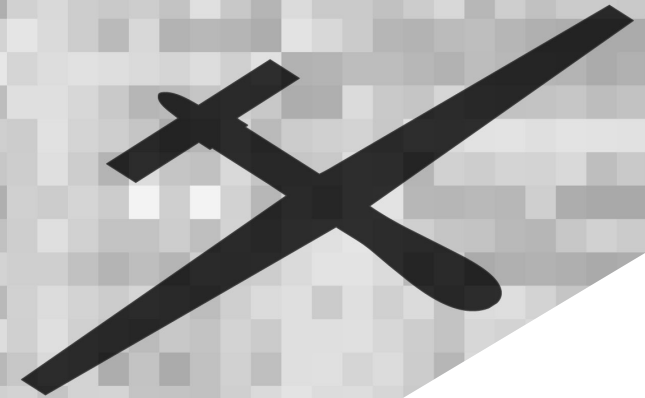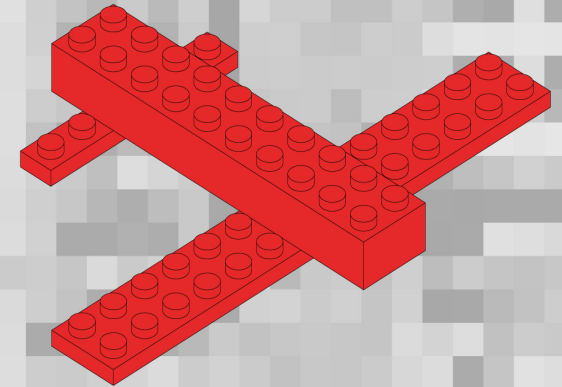**Do not** expose the Badge to water or any other liquid, or allow the battery to get wet.

The GPN Badge has no reverse-polarity protection! Please double-check the battery polarity before plugging it in.

The Lithium-Ion cell or the Badge may get hot, explode or ignite and cause serious injury if exposed to abuse conditions.

The GPN Badge is sold without any warranty.

Works as intended?
17. Gulaschprogrammiernacht

HACK THE BADGE

Bored of the shipped ROMs and the lame hardware? Develop your own software and hardware for the Badge and participate in the "Hack the Badge" challenge.

Learn more at:
https://entropia.de/GPN17:Hack_the_Badge

SPONSORS

We would like to thank our partners for providing the following parts:

BOSCH

Bosch Sensortec GmbH
BNO055 9-axis IMU

乐鑫信息科技
ESPRESSIF SYSTEMS

Espressif Systems
ESP8266 WiFi SoC

GPN BADGE
GETTING STARTED

Everything you need to know about your Badge.

THE GPN BADGE

YOUR SMART COMPANION

After 3 months of development, the GPN Badge finally became a reality. This small piece of electronics will accompany you during the next four days and notify you when the goulash is ready. Here is a overview of what makes the GPN Badge so powerful.

INFRARED COMMUNICATION

The IR LED and receiver can be used to communicate over short distances.

To transmit data via IR, solder on the IR LED. The longer leg is the positiv pin (anode), "+" on the pcb.

IR Transmit
IR receive

5V max 500mA
Not Connected (MQ3 Digital Out)
Switchable GND (MQ3 Return)
MQ3 Analog Out

128x128 RGB LCD

TP4056 Charger
500mA default
Close Solder Jumper for 1A

Light Dependent Resistor

CD4051 Analog MUX
CP2102 UART Bridge
I2C Port Expander
BNO055 9-axis IMU

GND
3V, max 200mA
WS2813 Out.
Analog In, 10bit. max 1V
Digital Out. max 4mA
I2C SDA
I2C SCL
5V VUSB. max 500mA
UART RX
UART TX

USB Select
Up: USB Bitbang
Down: USB Prog

Power Switch
Up: OFF
Down: ON

SENSORS

• BNO055
This chip fuses 10 sensors into a single package. It contains a 3-axis accelerometer, a 3-axis gyroscope, a 3-axis compass, and a temperature sensor.

• MQ3 Alcohol Sensor
Measures the ethanol concentration in the air. It's not very accurate, but enough to tell whether or not you've had enough Tschunks! Also detects other flammable gases and smoke. You can plug in other pin compatible sensors to measure other gases like CO2, or use the 5V output to charge your phone.

• LDR
Measures ambient light level. Solder on from the back.
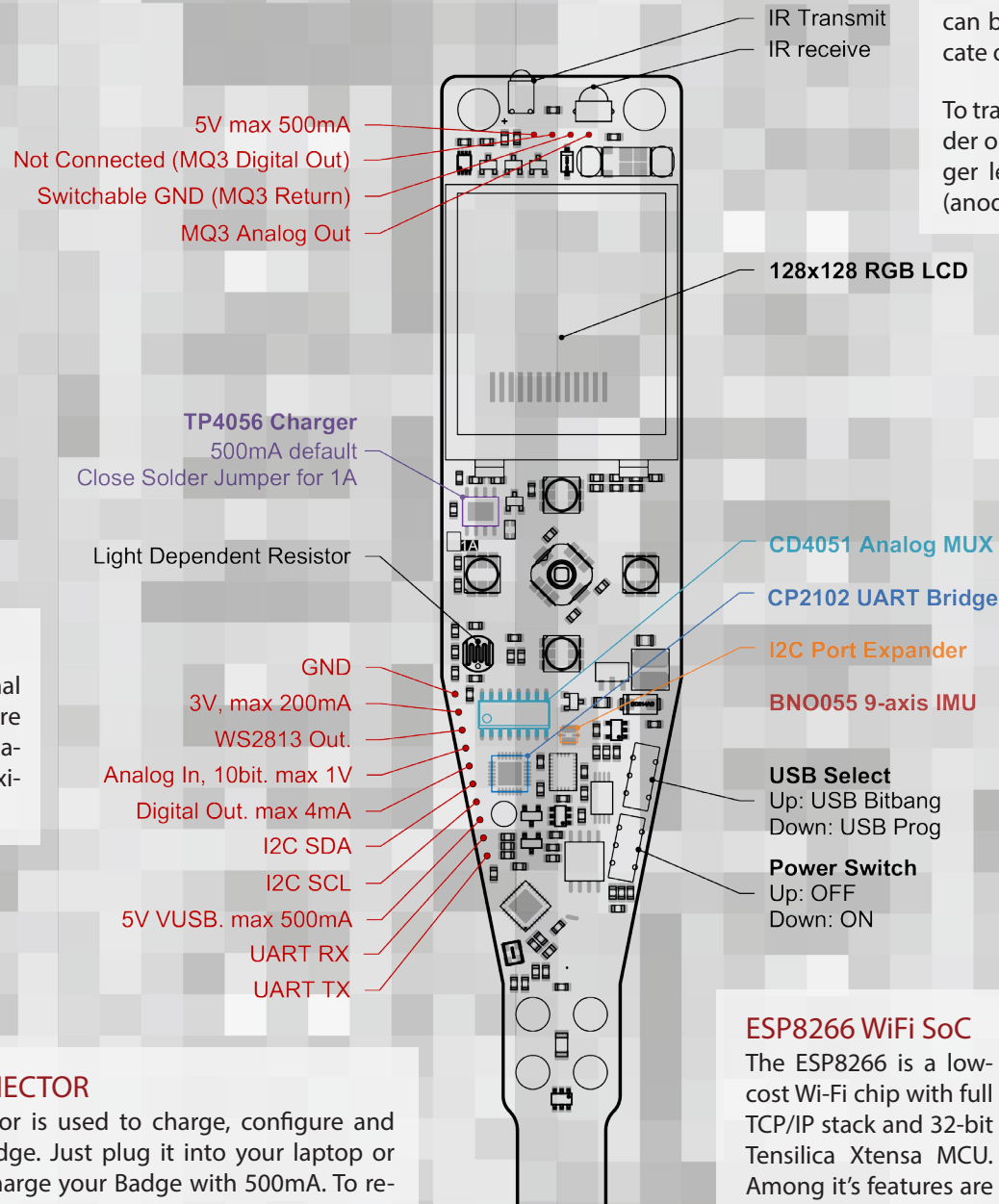
EXPANSION HEADER

Build your own shields, breakout boards or additional hardware and connect it to the Badge. Solder on more WS281x LEDs and I2C devices. Complete your time machine. However, ensure you don't violate the given maximum ratings.

MEMORY MAP

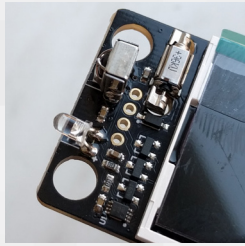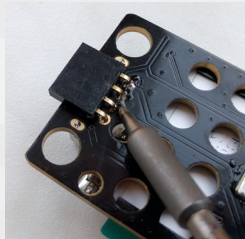| rboot	8kB	0x000000
rom0	512kB	0x002000
rom1	512kB	0x082000
rom1	512kB	0x102000
rom3	512kB	0x182000
rom4	512kB	0x202000
rom5	512kB	0x282000
SPIFFS	1MB	0x300000
rom6 OTA	1MB	0x402000
rom7 OTA	1MB	0x502000
rom8 OTA	1MB	0x602000
rom9 OTA	1MB	0x702000

PCB USB CONNECTOR

The USB connector is used to charge, configure and program your Badge. Just plug it into your laptop or wall charger to charge your Badge with 500mA. To reduce charging time, bridge the solder jumper to charge with 1A. When programming your Badge, make sure the upper switch is in the correct position.

ESP8266 WiFi SoC

The ESP8266 is a low-cost Wi-Fi chip with full TCP/IP stack and 32-bit Tensilica Xtensa MCU. Among it's features are 16 GPIOs, I2C, SPI and a 10bit Analog-To-Digital converter