

Smart Mailbox



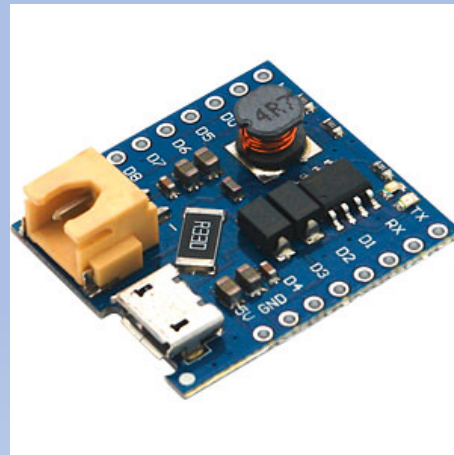
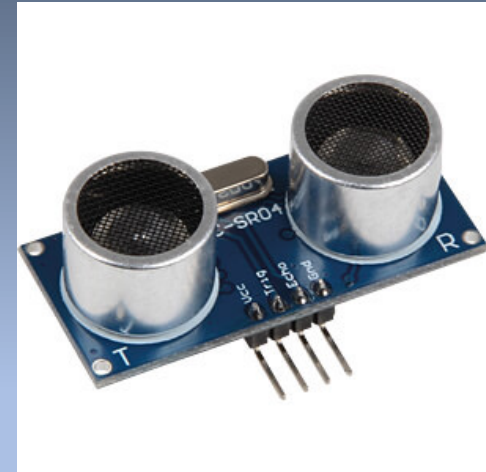
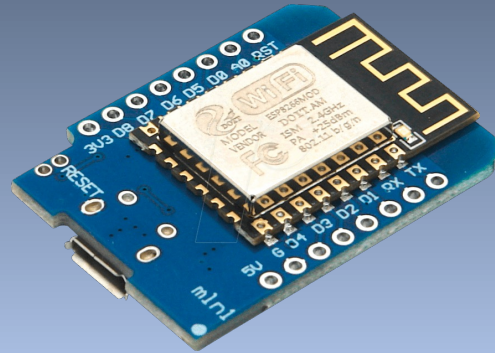
Gliederung

- Einleitung
- Hardwarekomponenten
- Gehäuse
- Node-RED
- Software
- Gerätvorstellung

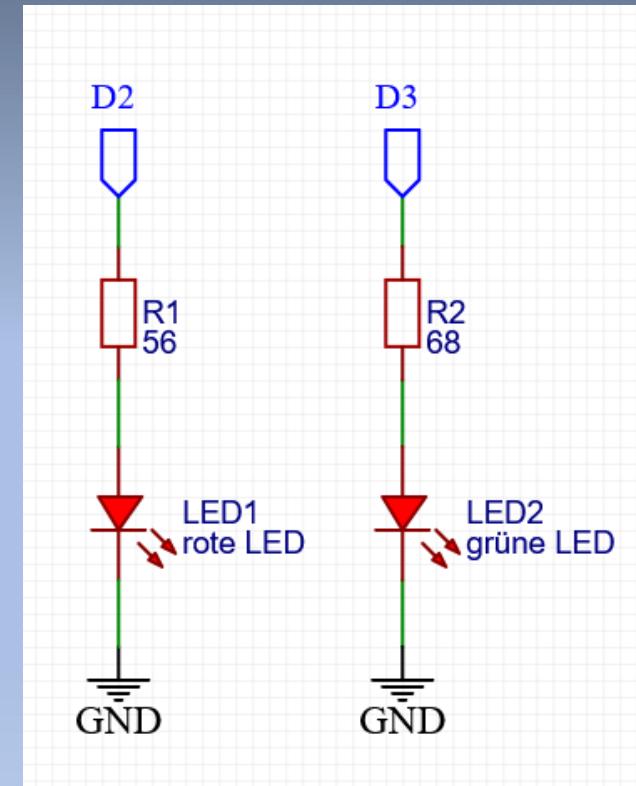
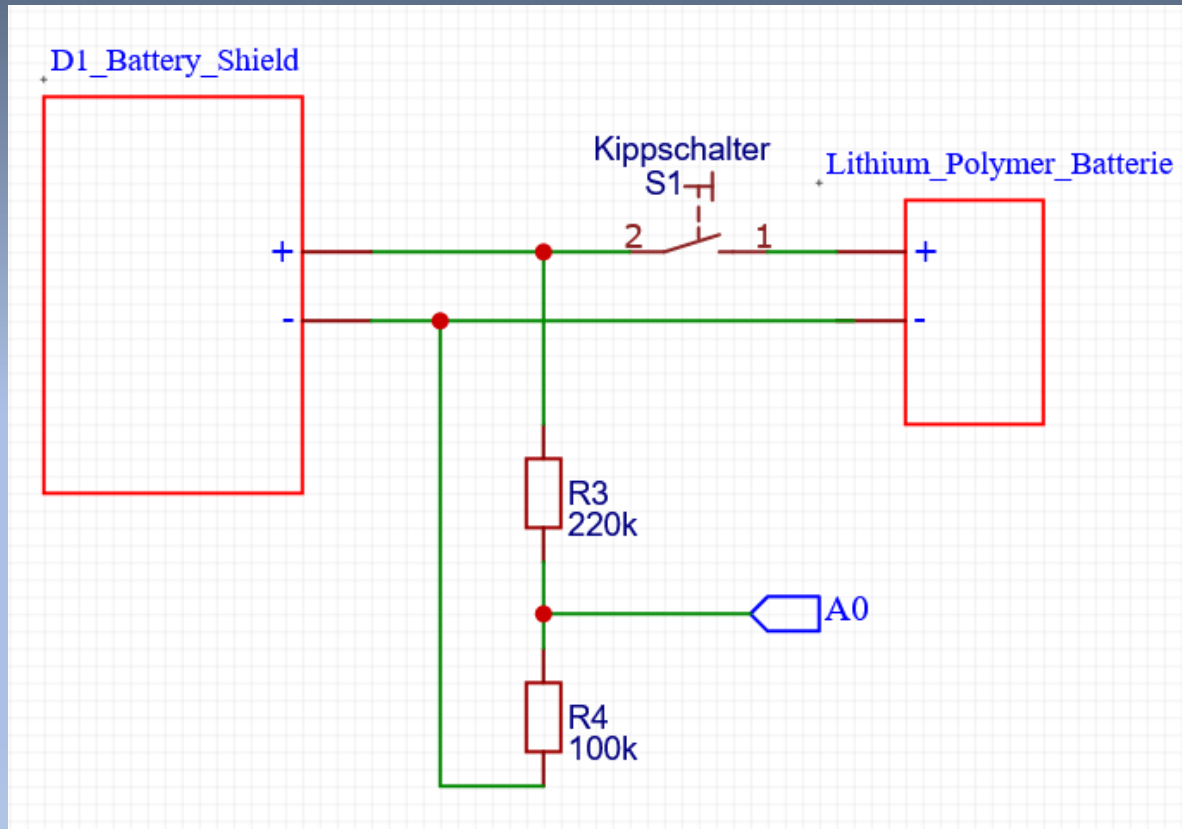
Einleitung

- Smarter Briefkasten
- Benachrichtigung bei Posteingang
- Bestätigen des Posteingangs

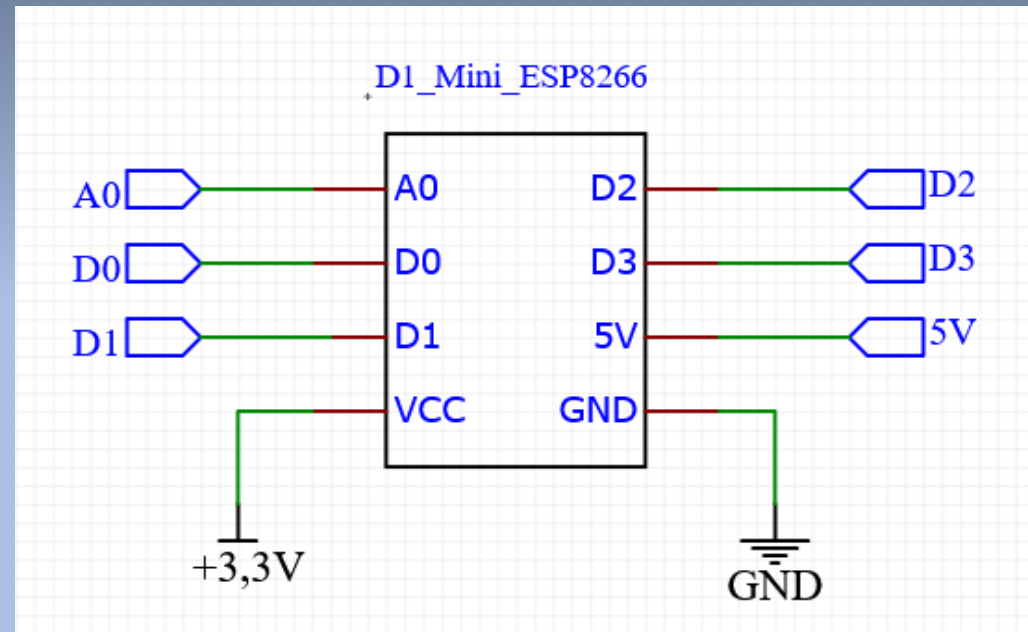
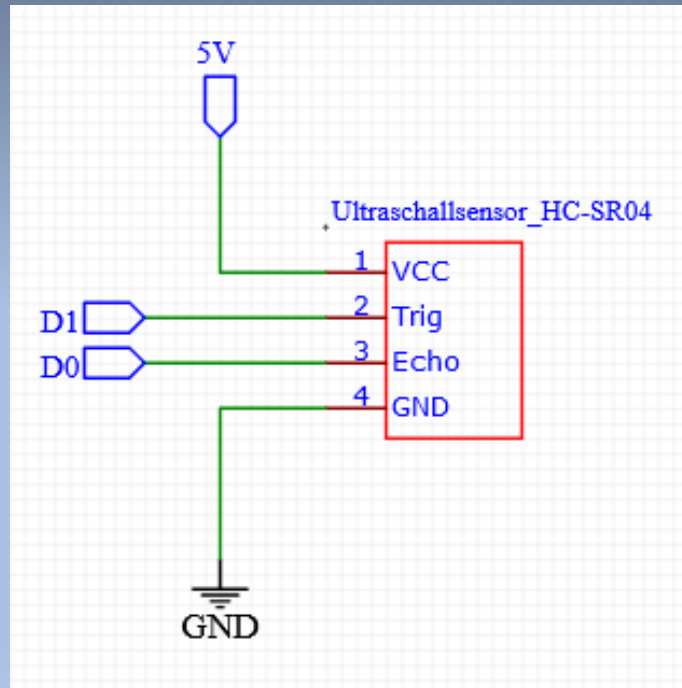
Hardwarekomponenten



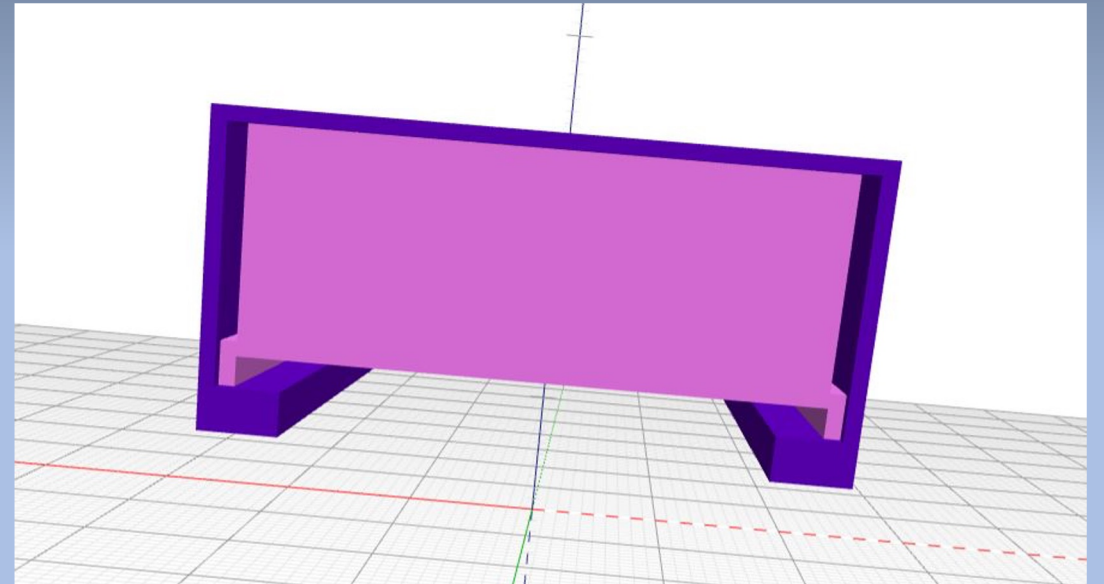
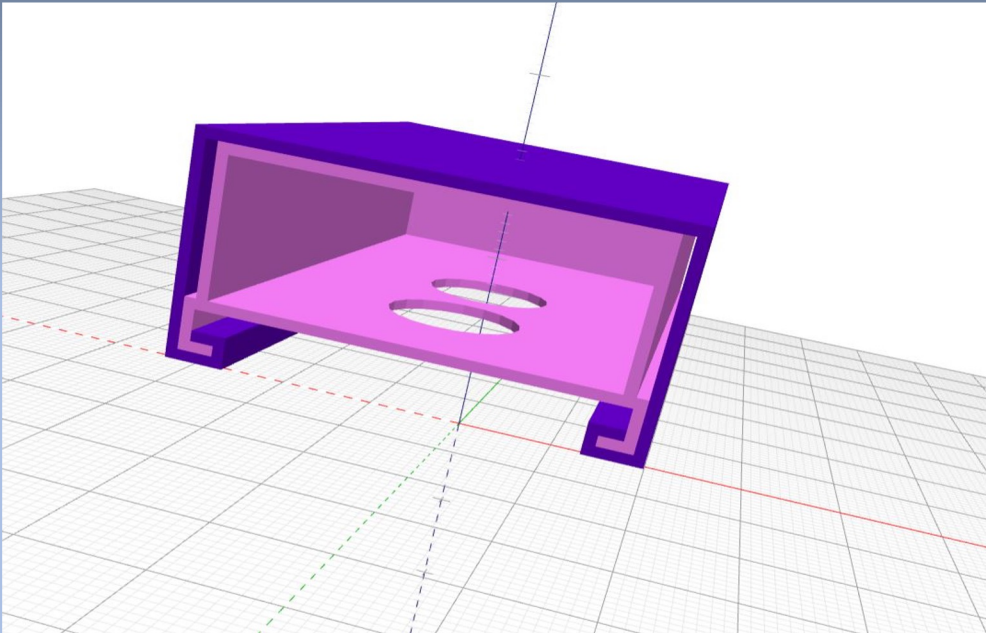
Hardwarekomponenten



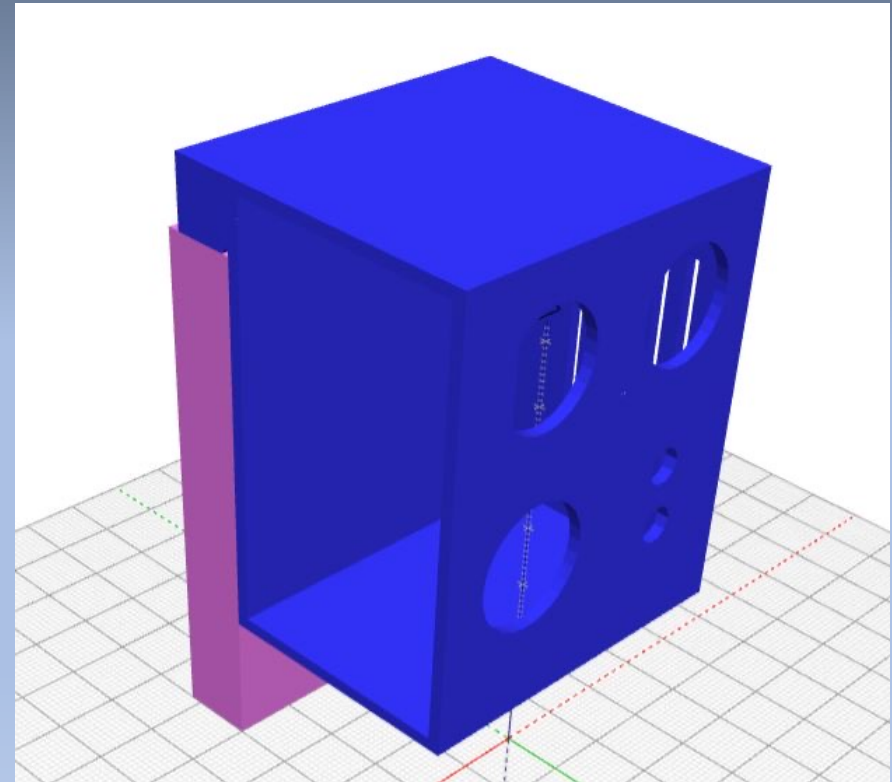
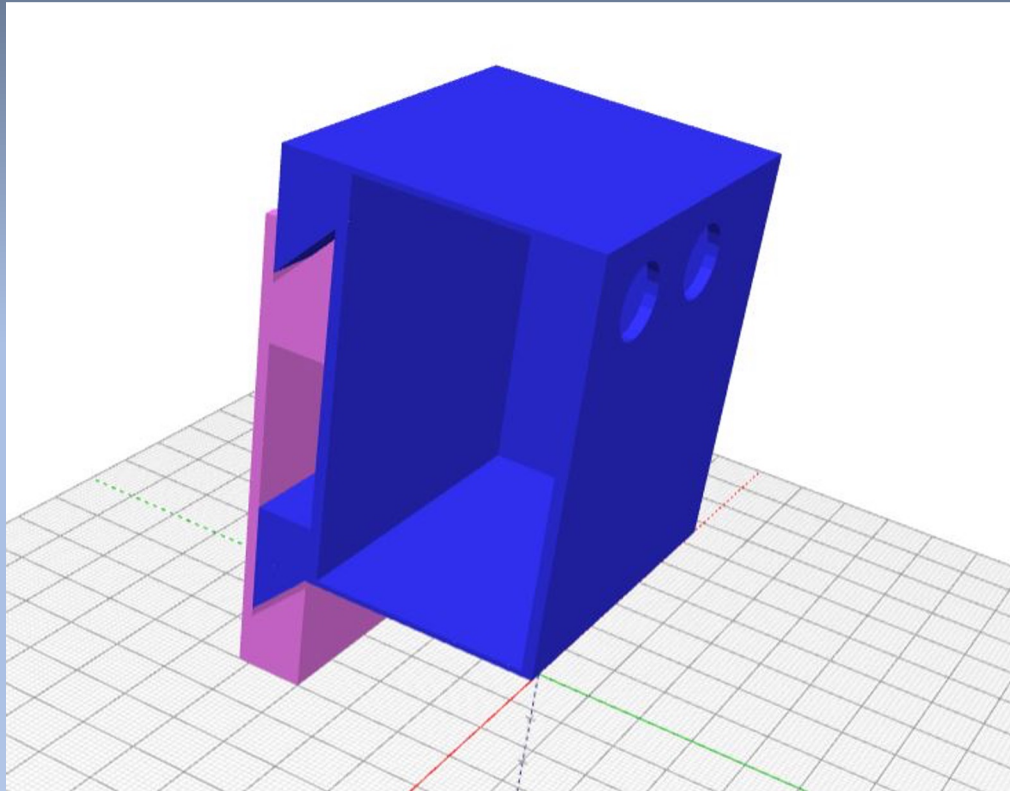
Hardwarekomponenten



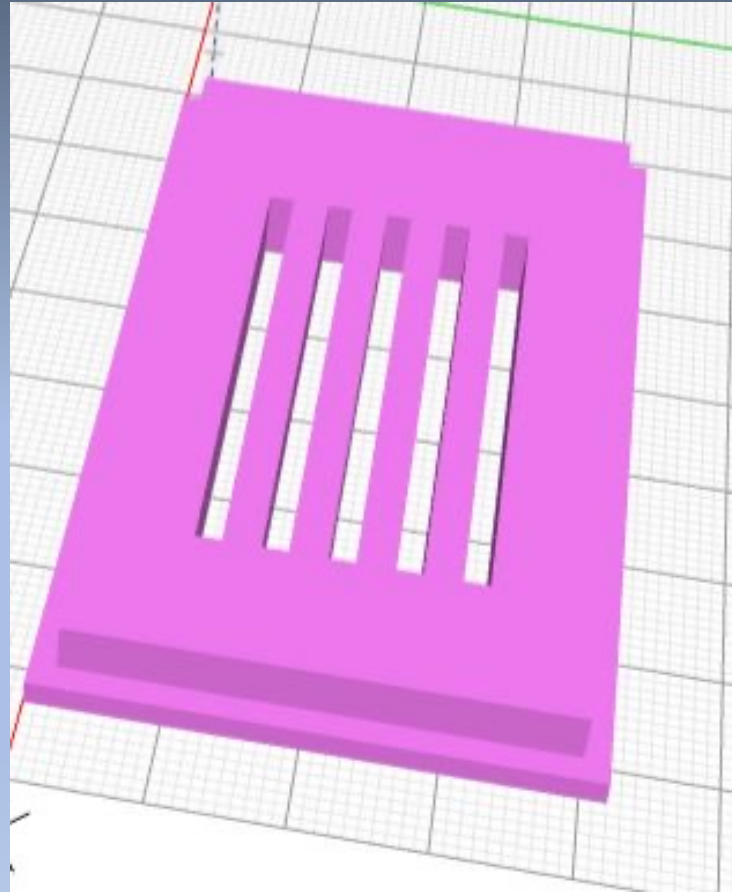
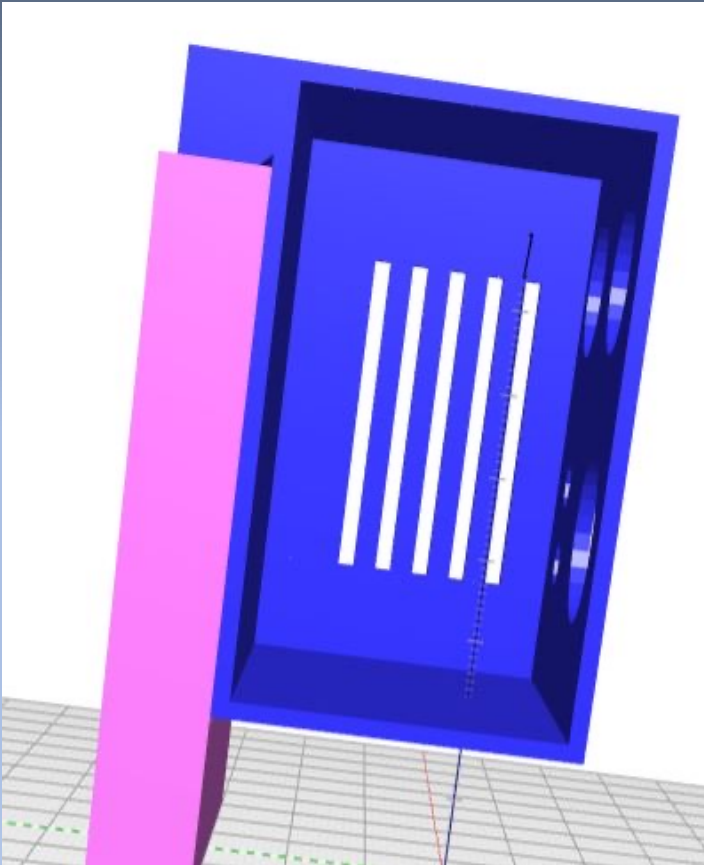
Gehäuse



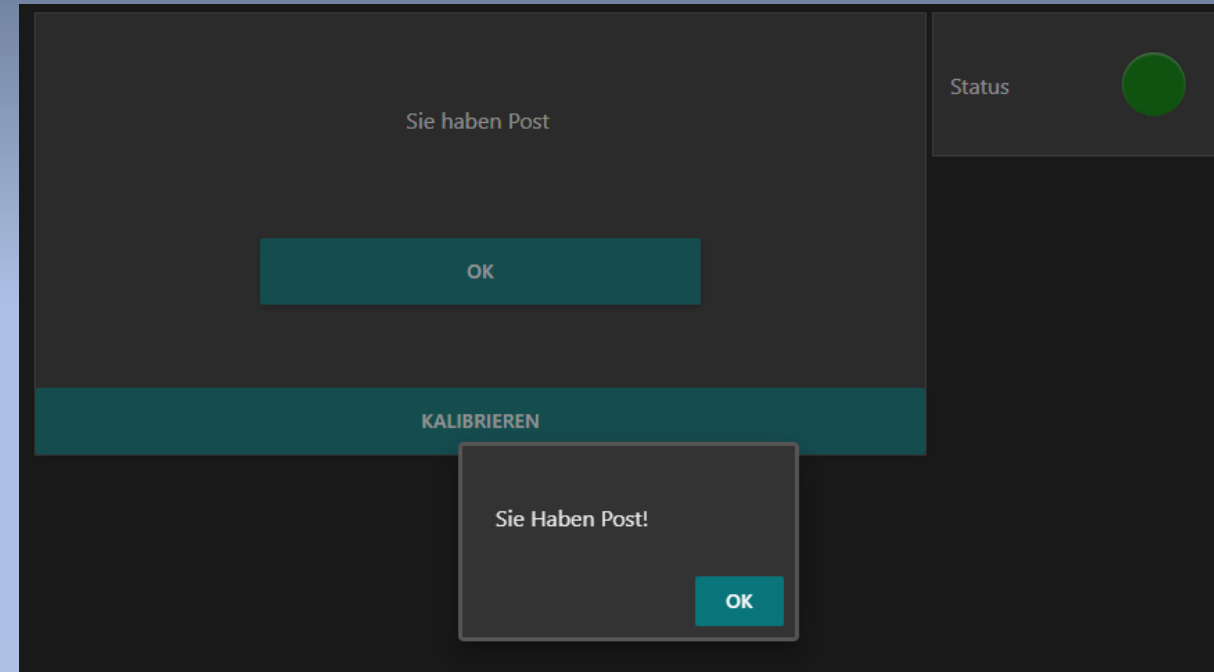
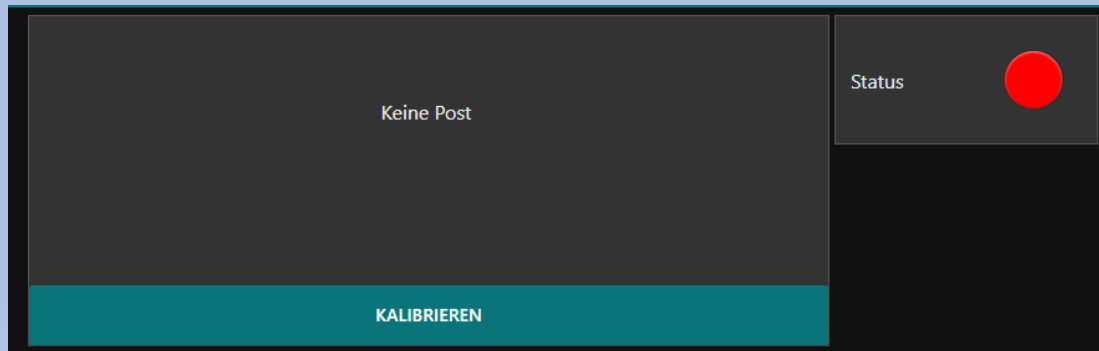
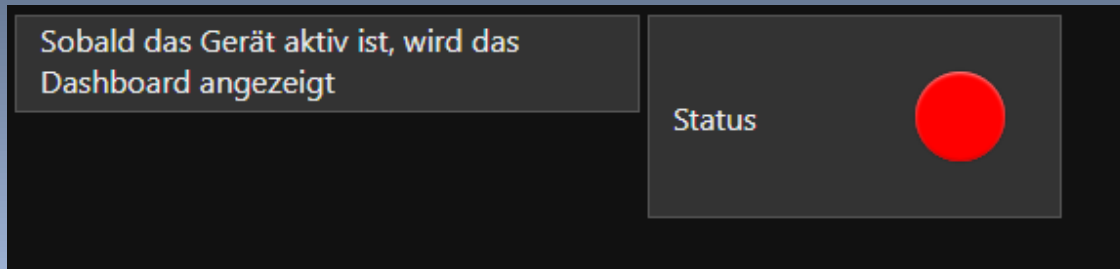
Gehäuse



Gehäuse




Node-RED



Node-RED

Smart Mailbox


Es wird versucht ein Verbindung zum Gerät herzustellen...



Sobald das Gerät bereit ist, wirst Du weitergeleitet

Smart Mailbox Batterie Status: 0 %


KALIBRIEREN

Verbunden 

Keine Post bisher eingegangen

Smart Mailbox Batterie Status: 0 %

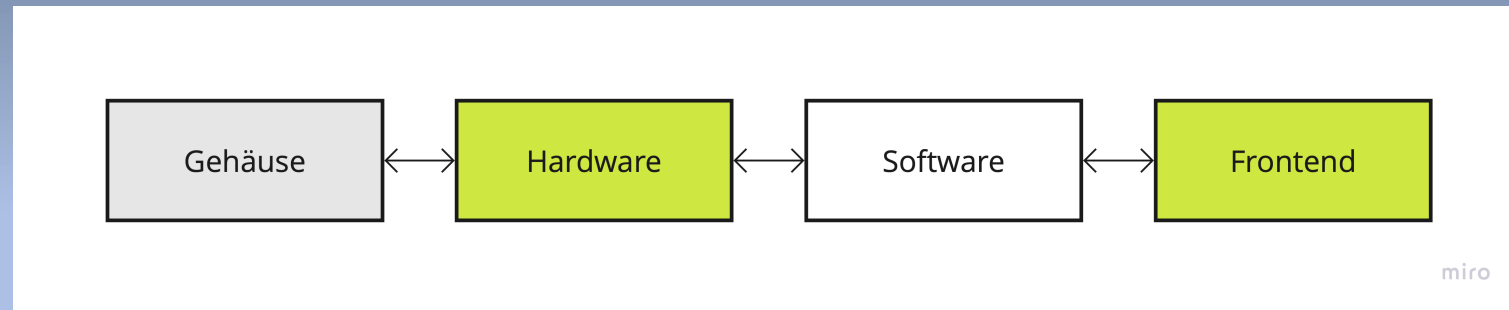
KALIBRIEREN

Verbunden 

Post ist eingegangen

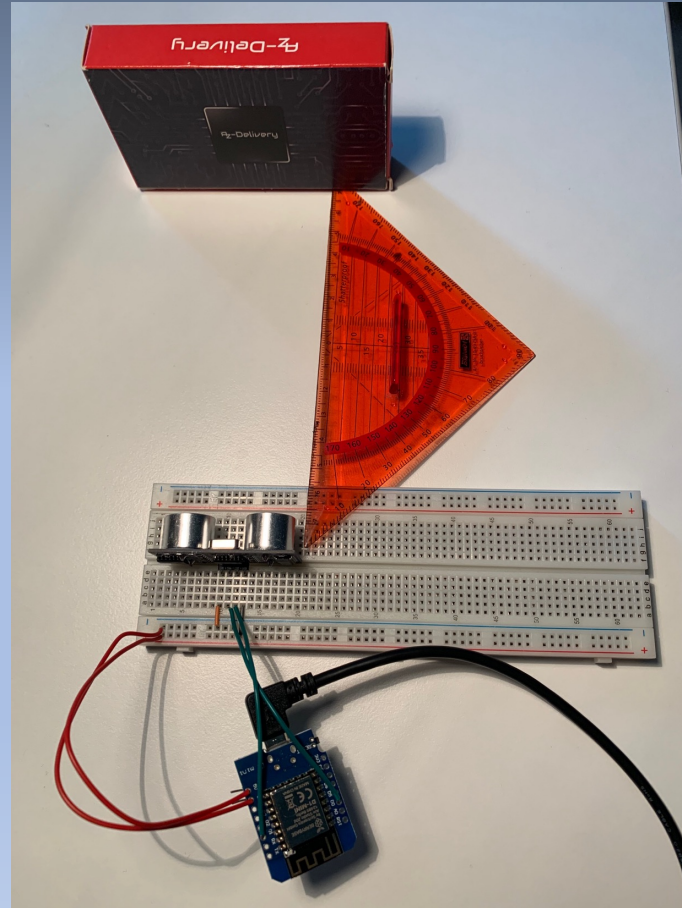
OK

Software



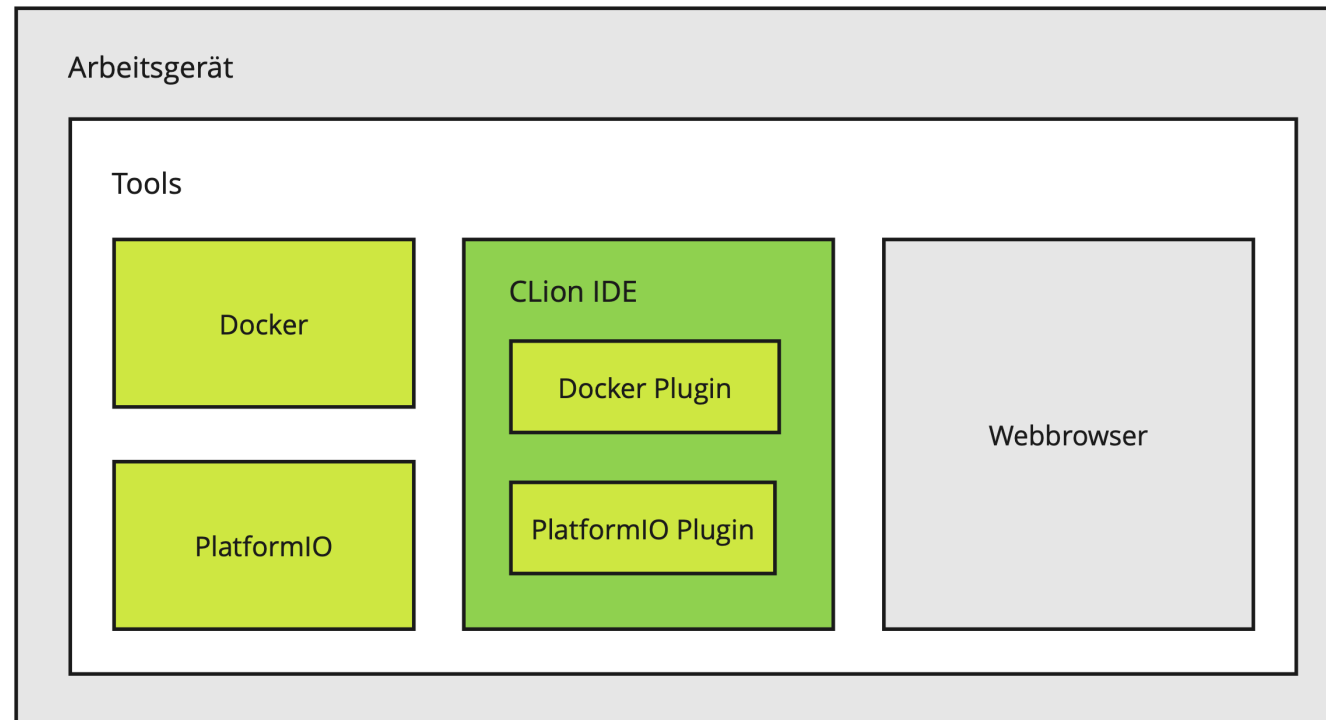
Software

Testen des Ultraschall-Entfernungssensors



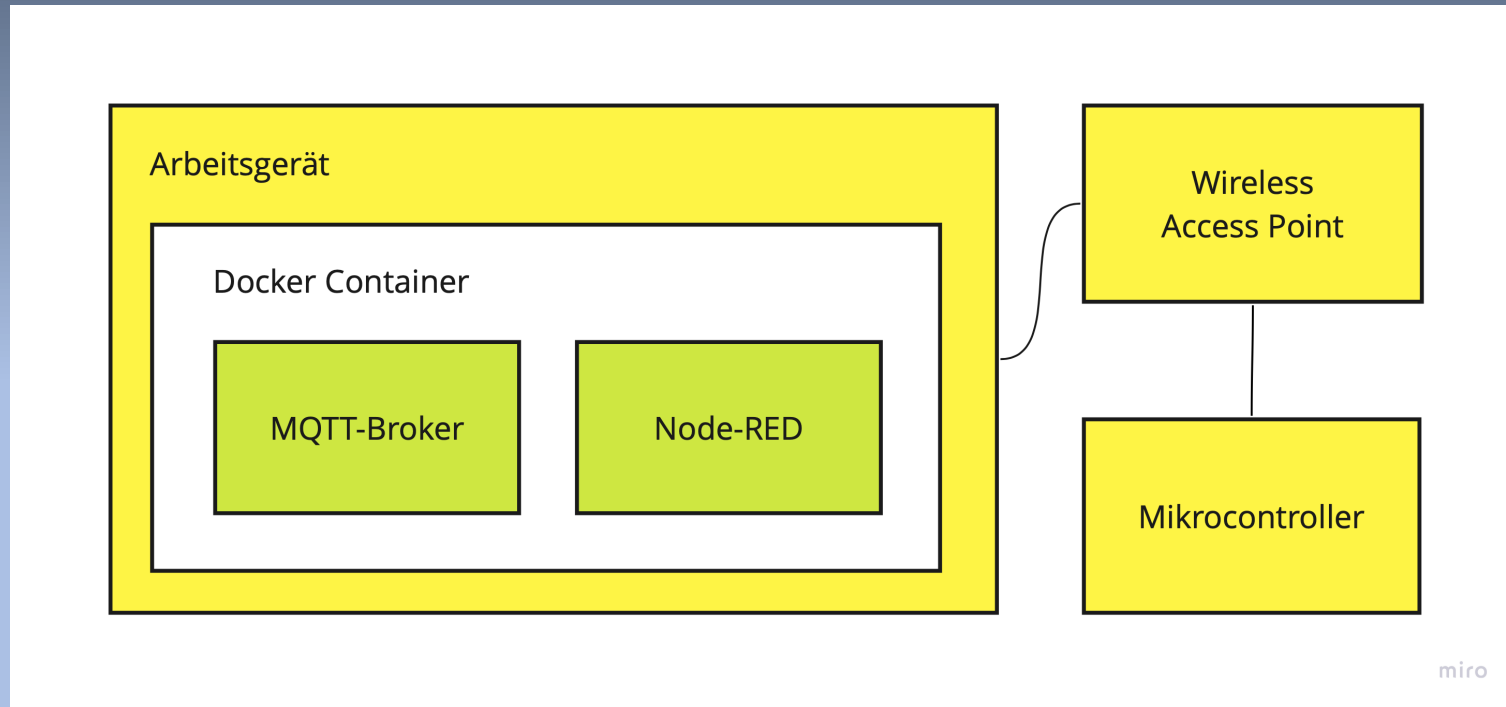
Software

Entwicklungsumgebung



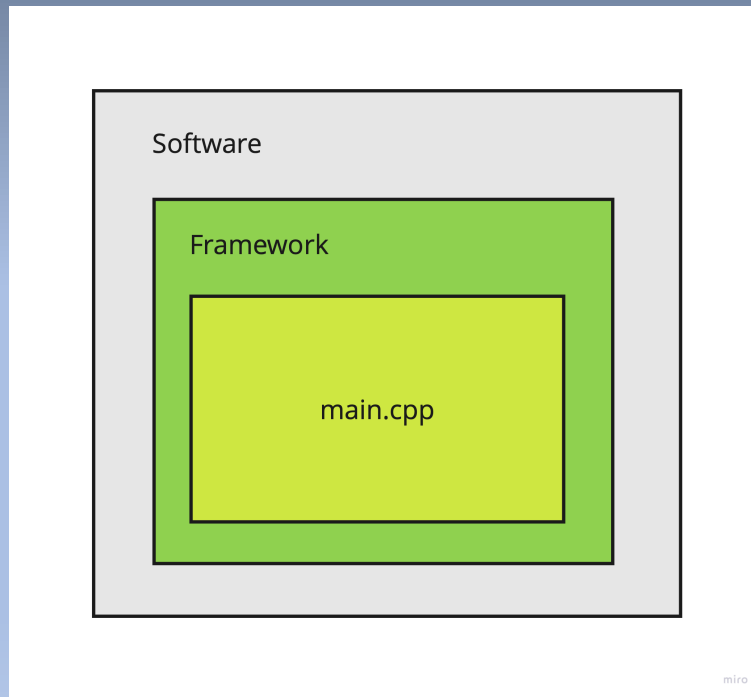
miro

Software Testumgebung



Software

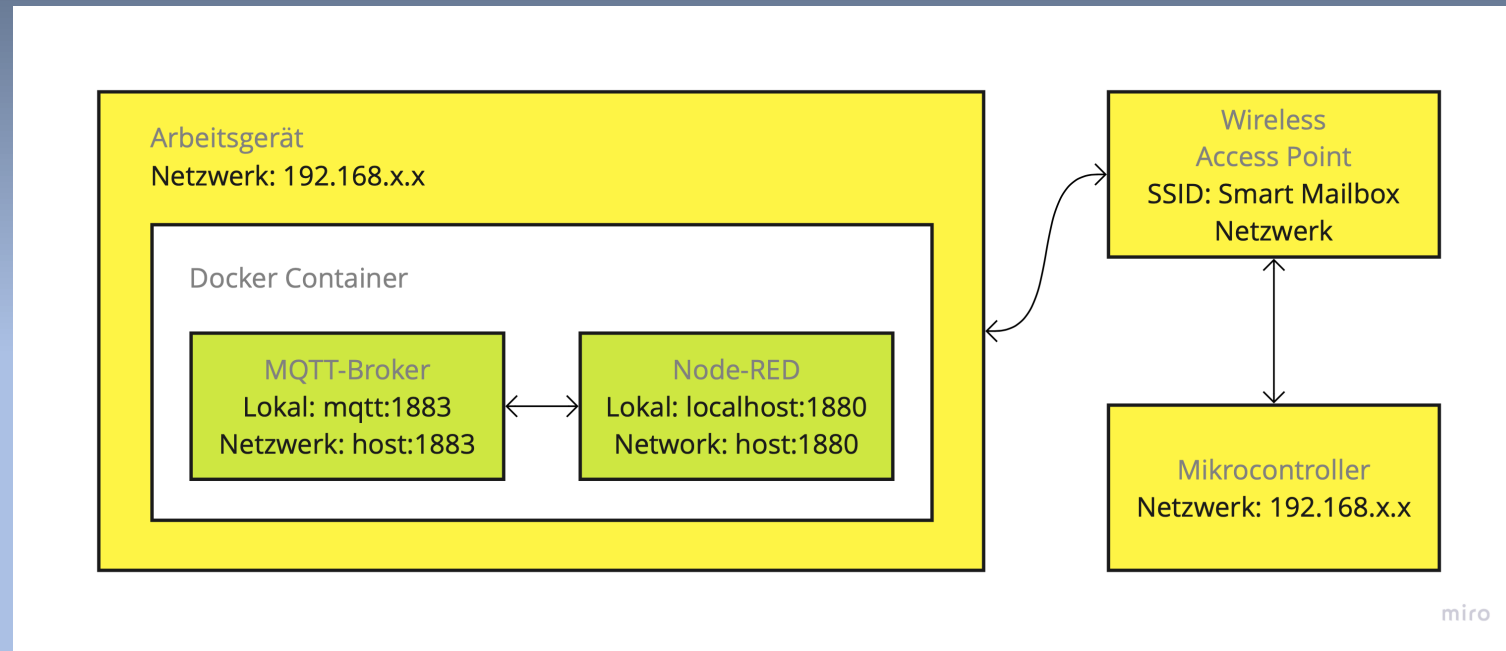
Wireless Access Point / Netzwerk



```
1  #include <ESP8266WiFi.h>
2  #include <WiFiClient.h>
3
4  #define AP_SSID "Smart Mailbox Network"
5  #define AP_SECRET "abcDEF123!"
6
7  const char *ssid = AP_SSID;
8  const char *password = AP_SECRET;
9
10 [[maybe_unused]] void setup() {
11     Serial.begin( baud: 9600);
12
13     delay(1000);
14
15     Serial.println();
16     Serial.print("Configuring access point...");
17
18     WiFi.softAP(ssid, psk: password);
19
20     IPAddress ipAddress = WiFi.softAPIP();
21     Serial.print("AP IP address: ");
22     Serial.println(ipAddress);
23 }
24
25 [[maybe_unused]] void loop() {}
```

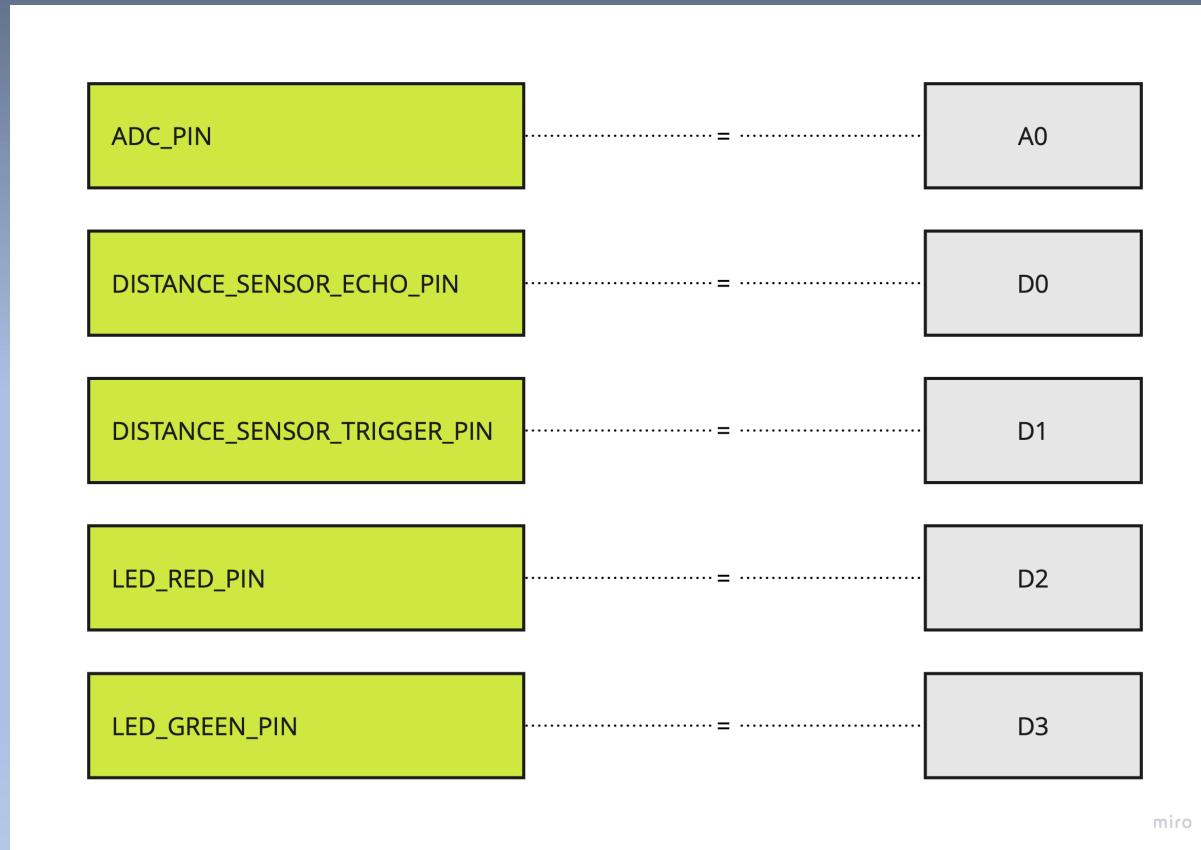

Software

Dienste und Adressen

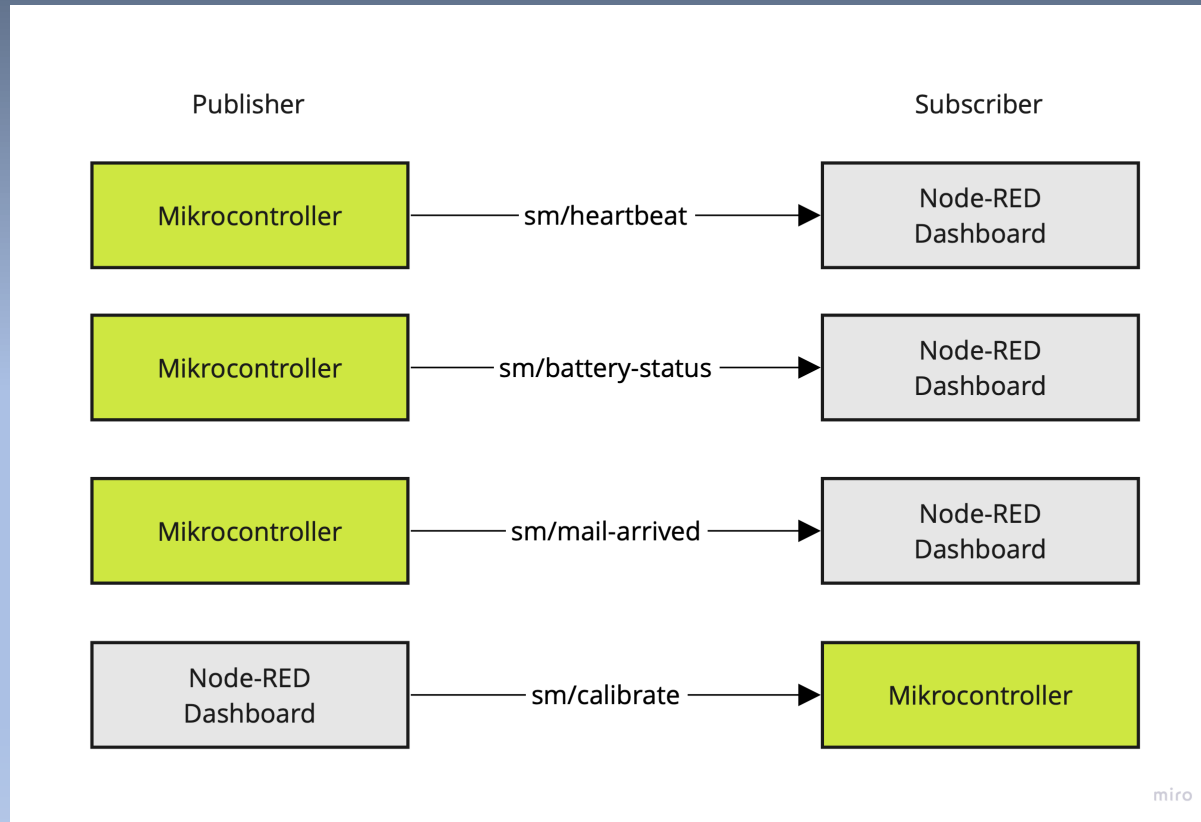


Software

Pinbelegung

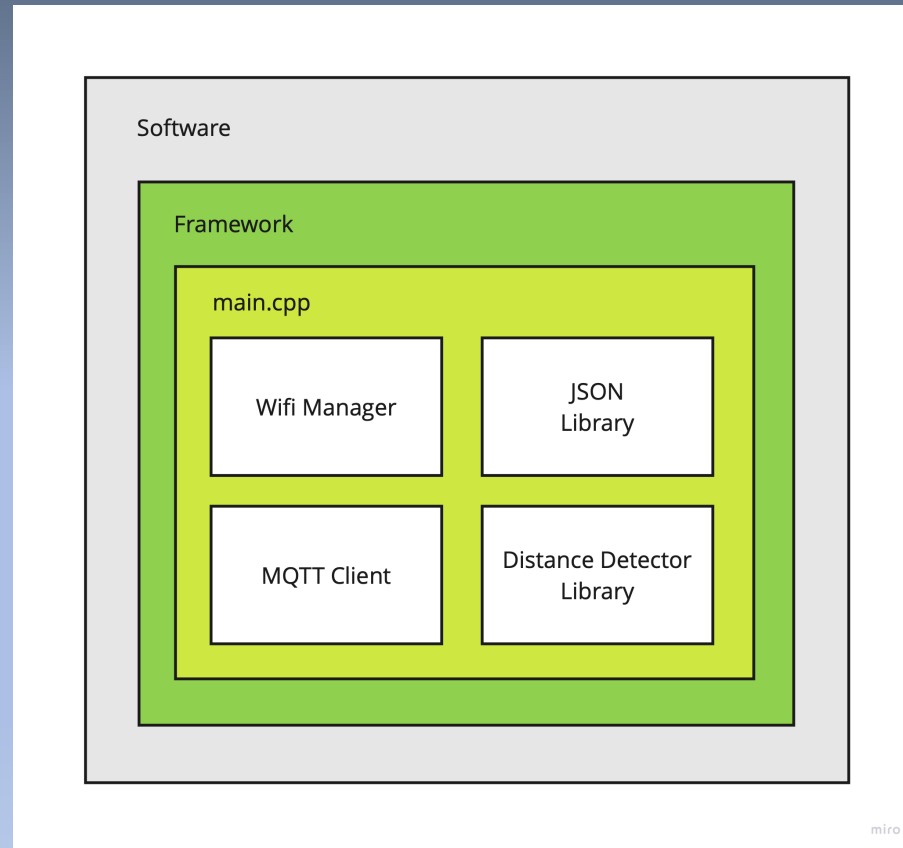


Software Endpunkte



Software

Softwarebestandteile



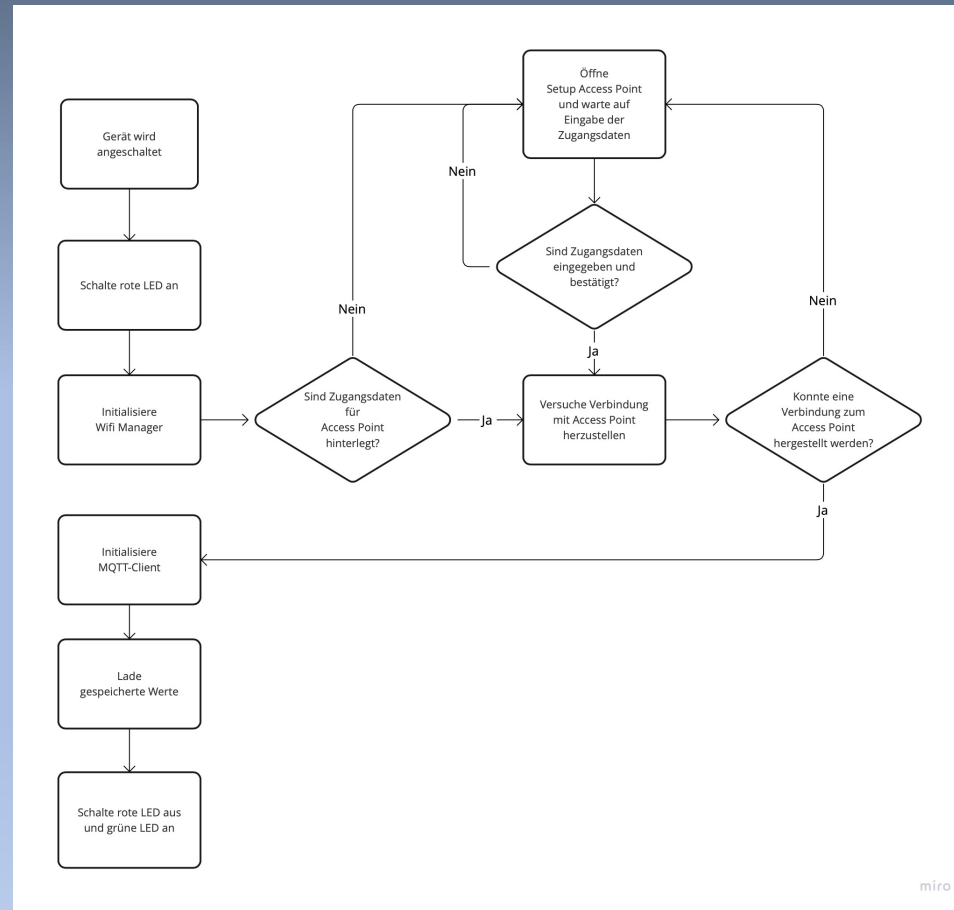
Software

Pakete

- Wifi Manager: Setup Access Point, WLAN-Zugangsdaten Speicherung
JSON Library: Speicherung der Konfigurationswerte
- MQTT Client: Kommunikation mit dem MQTT-Broker
- Distance Sensor Library: Entfernungsmessung

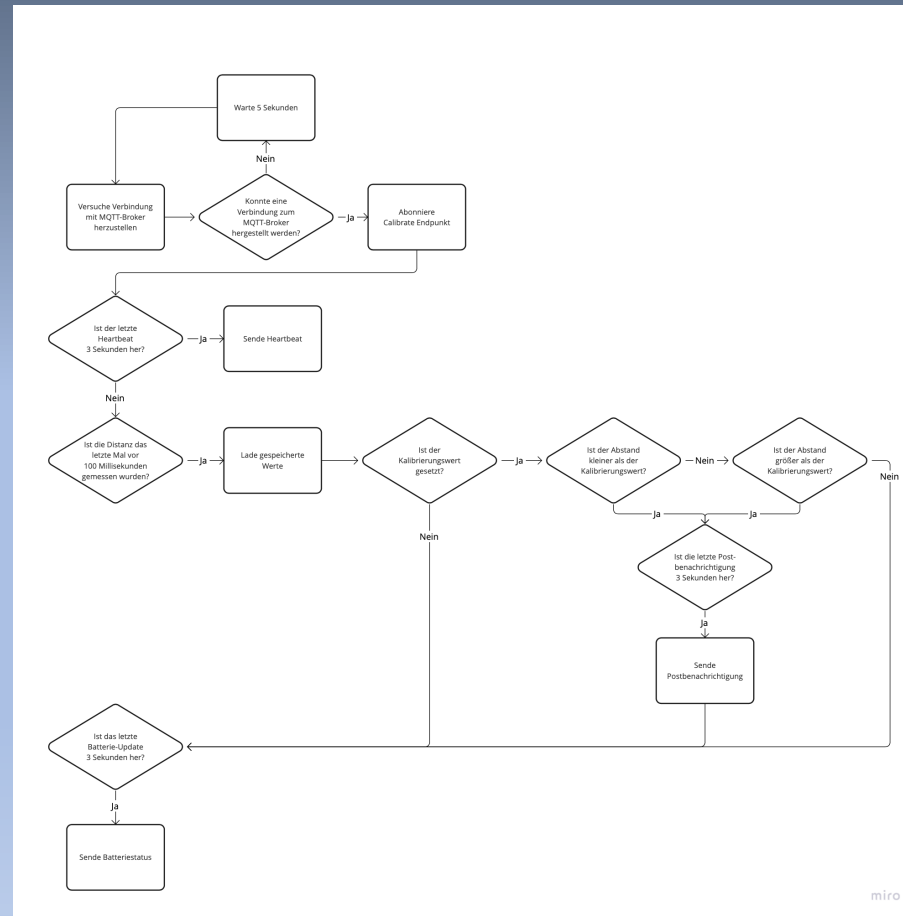
Software

Softwareablauf Setup



Software

Softwareablauf Loop



Software

Kernfunktion

- Sensor misst Entfernung zur gegenüberliegenden Innenwand
- Kalibrierungswert wird abgespeichert
- Momentaner Abstand wird mit Kalibrierungswert verglichen
- Bei Abstandsveränderung wird ein Posteingang erkannt

Software

Debuggen

- Kein aktive Debug-Session mit dem esp8266 möglich
- Serieller Monitor
- Debug Flags
- Sparsames und sinnvolles Loggen
- Status durch LEDs

Smart Mailbox

Gerätvorstellung

GitHub:
Smart Mailbox



GitHub:
Smart Mailbox Network



Vielen Dank für eure Aufmerksamkeit!