https://public.carlcare.com/public/fca720a3bd2e931266669819b0b8bfb5.jpg

https://www.shutterstock.com/image-photo/overslept-man-holding-alarm-clock-waking-1761880997

SMARTER WECKER

Bernd Storath

GLIEDERUNG

- Motivation
- Komponente
- Aufbau
- Backend
- Frontend
- App
- Fazit
- Ausblick

Smartphone

- Strahlung
- Handy Akku
- Dauerhaft aufladen

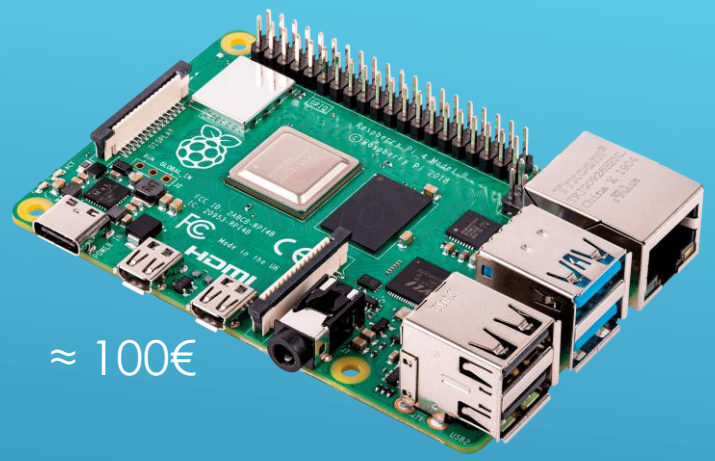
Wecker

- Schlechte Bedienung
- Schnell kaputt

Umwelt

- Kein Plastik
- Reparierbarkeit

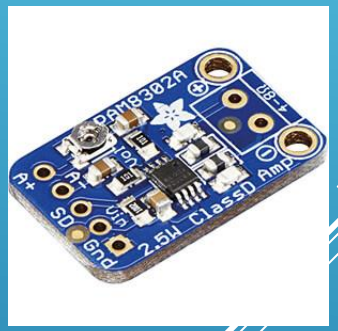
MOTIVATION



≈ 100€

≈ 50€

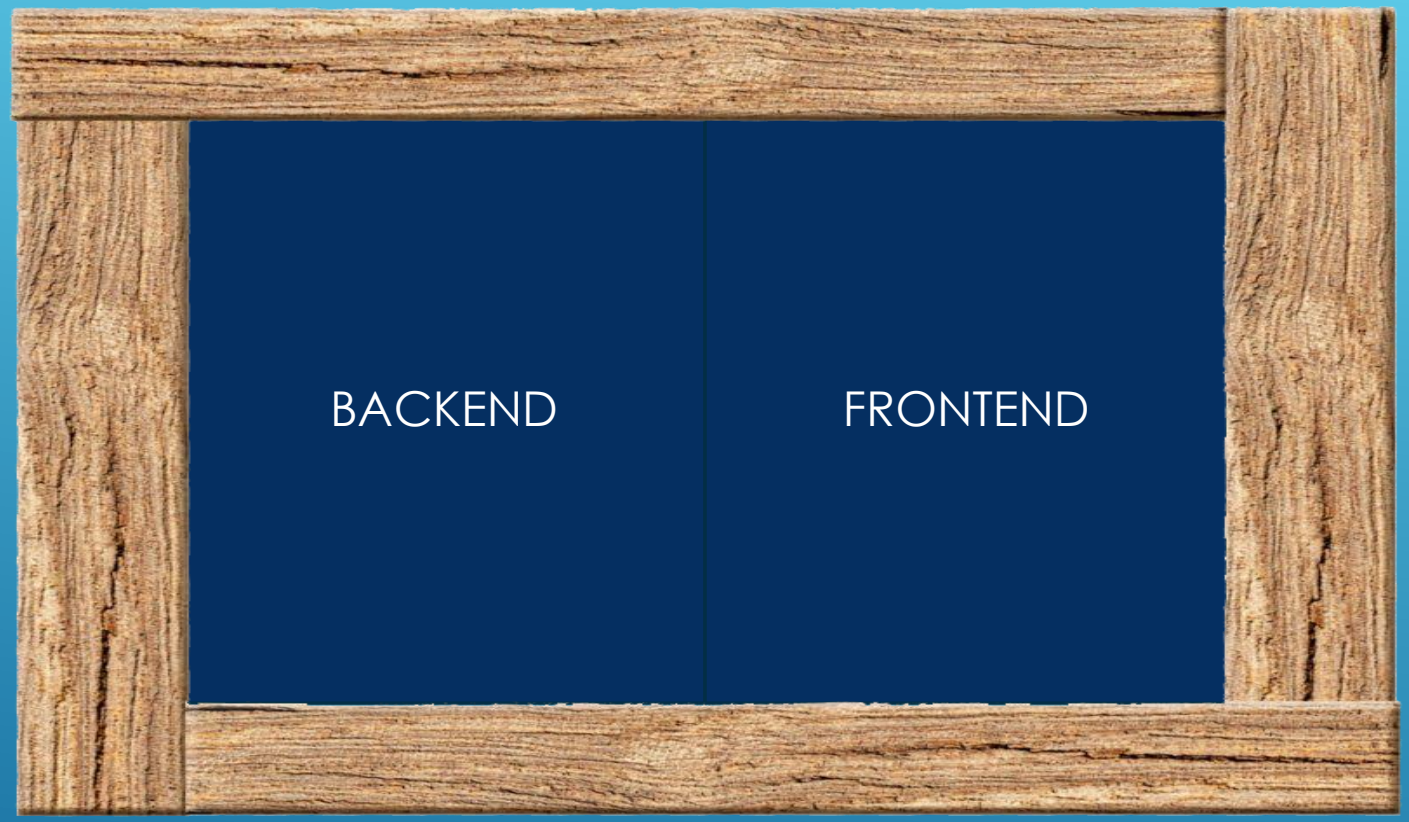
≈ 10€

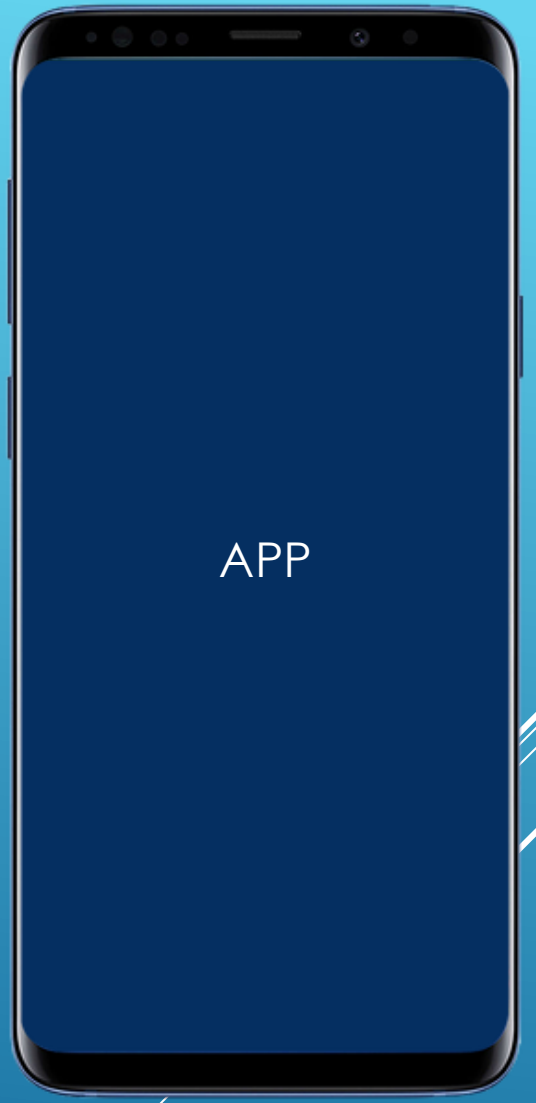


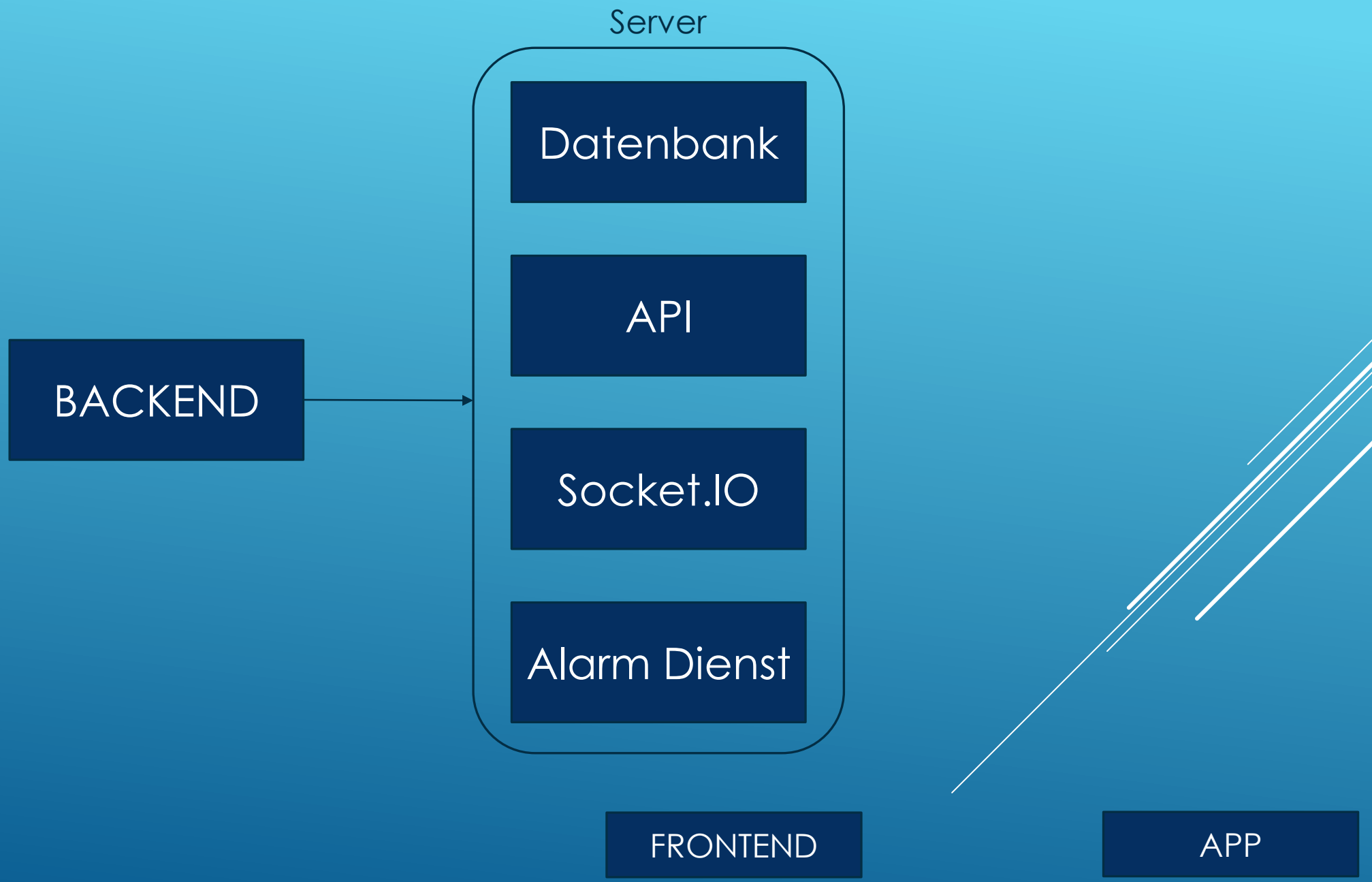
≈ 5€

KOMPONENTE

GEHÄUSE


BACKEND
FRONTEND


APP


Server
Datenbank
API
Socket.IO
Alarm Dienst
BACKEND
FRONTEND
APP

Datenbank

- Format: JSON
- Speichert Daten
  → Persistenz

API

Socket.IO

Alarm Dienst

FRONTEND

APP

Datenbank

API

Socket.IO

Alarm Dienst

- Framework: Express
- Paradigma: REST
- zod-Validierung

```
api: {
  alarms: new DependsOnMethod({
    get: getAlarmsController,
    delete: deleteAlarmsController,
    patch: patchAlarmsController,
    post: postAlarmsController
  }),
  ringtones: new DependsOnMethod({
    get: getRingtonesController,
    delete: deleteRingtonesController,
    post: postRingtonesController
  }),
  settings: new DependsOnMethod({
    get: getSettingsController,
    post: postSettingsController
  })
},
ringtones: new ServeStatic(join(__dirname, '../Ringtones'), {
  index: false,
  redirect: false,
  setHeaders: (res) => {
    res.setHeader('Access-Control-Allow-Origin', '*');
  }
})
```

FRONTEND

APP

Datenbank

API

Socket.IO

Alarm Dienst

- Protokoll: WebSocket

```
this.server.on('connection', (socket: Socket) => {
  if (socket.handshake.query.type === 'frontend') {
    this._frontend.push(socket);
  } else if (socket.handshake.query.type === 'client') {
    this.clients.push(socket);
  }
  console.log(
    `CONNECT ${socket.id} ${socket.handshake.address} ${socket.handshake.query.type}`
  );
  socket.on('disconnect', () => {
    if (socket.handshake.query.type === 'frontend') {
      this._frontend = [];
    } else if (socket.handshake.query.type === 'client') {
      this.clients = this.clients.filter((s) => s.id !== socket.id);
    }

    console.log(
      `DISCONNECT ${socket.id} ${socket.handshake.address} ${socket.handshake.query.type}`
    );
  });

  socket.on('passthrough', ({ to, event, data }) => {
    console.log(`PASSTHROUGH ${socket.id} ${to} ${event} ${data}`);
    if (to === 'frontend') {
      this.emitFrontend(event, data);
    }
  });
});
```

FRONTEND

APP

Datenbank

API

Socket.IO

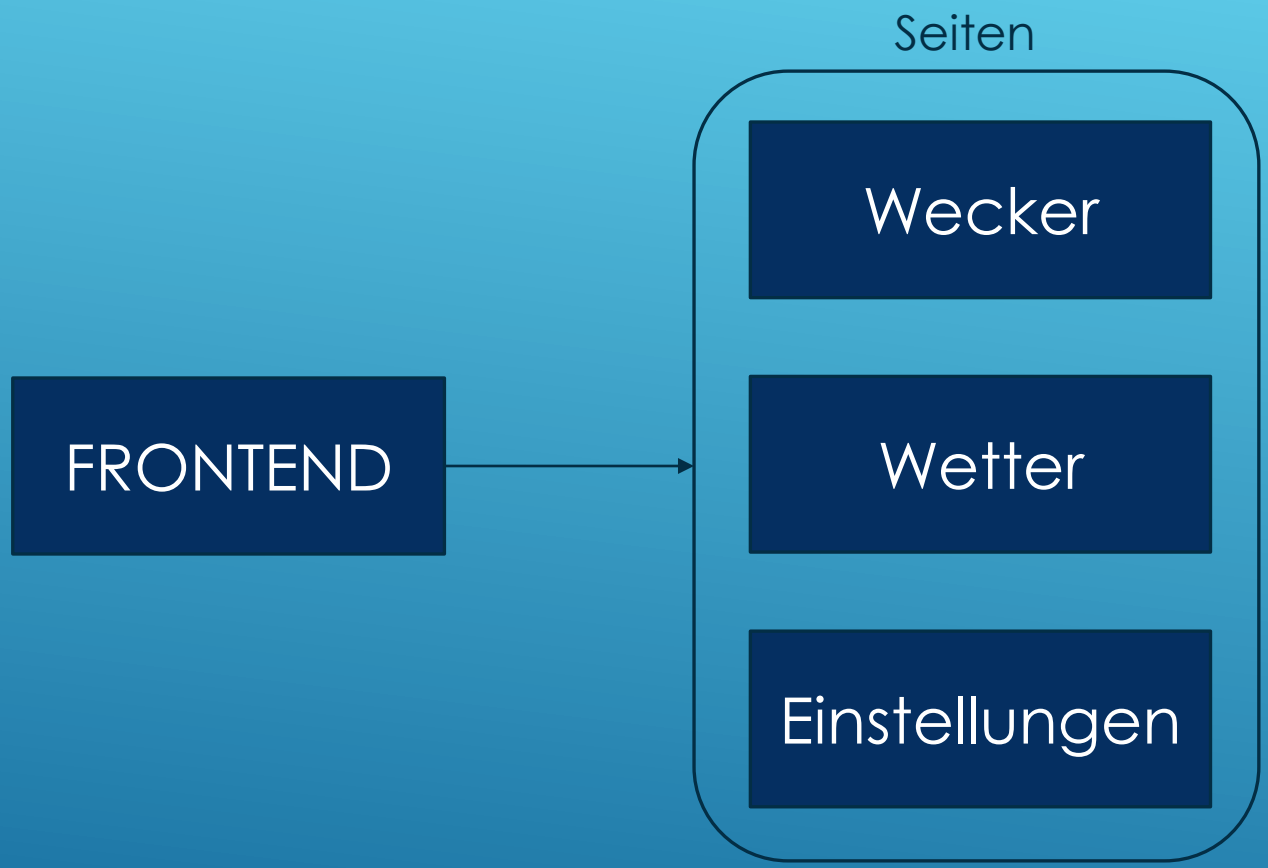
Alarm Dienst

- Weckt Nutzer

```
async check() {
  const alarms = await db.getAlarms();
  const settings = await db.getSettings();
  const date = new Date();
  /** `Day, HH:MM:SS` */
  const currentDate = date.toLocaleTimeString('de-DE', {
    timeZone: settings.timezone,
    weekday: 'long'
  });
  /** In `HH:MM` format */
  const currentTime = currentDate.slice(0, -3).slice(-5);
  const currentDay = currentDate.split(',')[0];
  const currentDayIndex = this.days.indexOf(currentDay);
  for (const alarm of alarms) {
    if (alarm.enabled && alarm.time === currentTime && alarm.days[currentDayIndex]) {
      this.ring(alarm);
    }
  }
}
```

FRONTEND

APP



APP

Wecker

Wetter

Einstellungen

Uhrzeit

Datum

Wetter

APP

Wecker → Klingeln

Wetter

Einstellungen

APP

Wecker

Wetter

Einstellungen

Ort

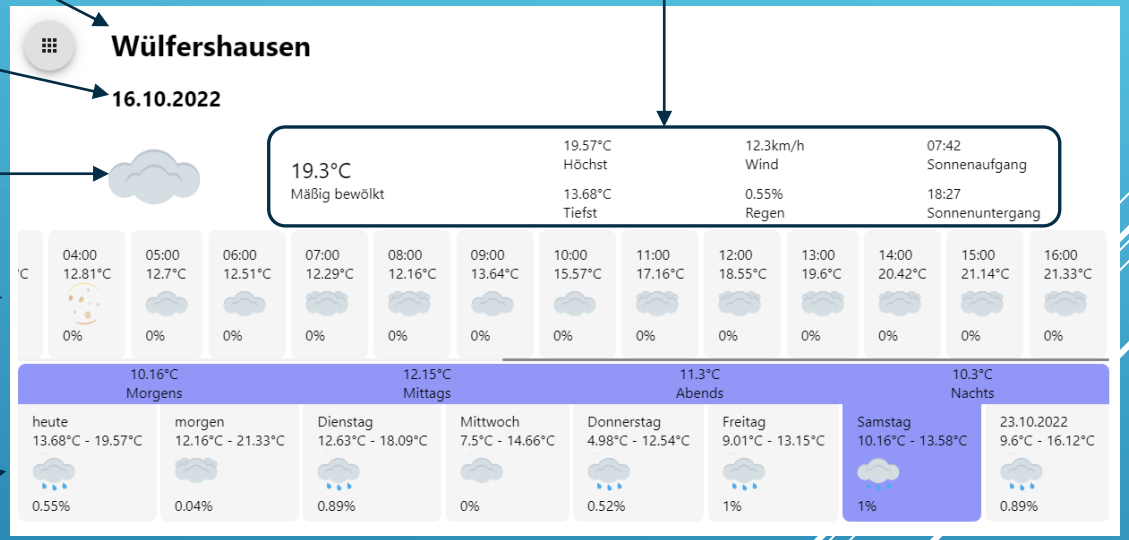
Datum

Himmel

24h-Werte

7 Tage

Jetzt



APP

Wecker

Wetter → Quelle

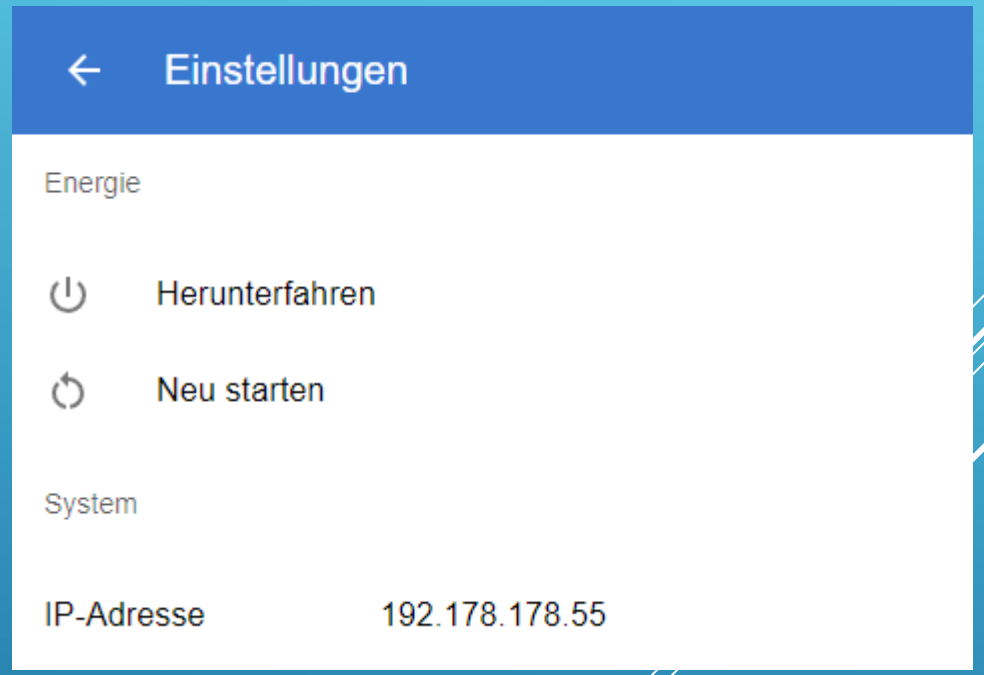
Einstellungen

APP

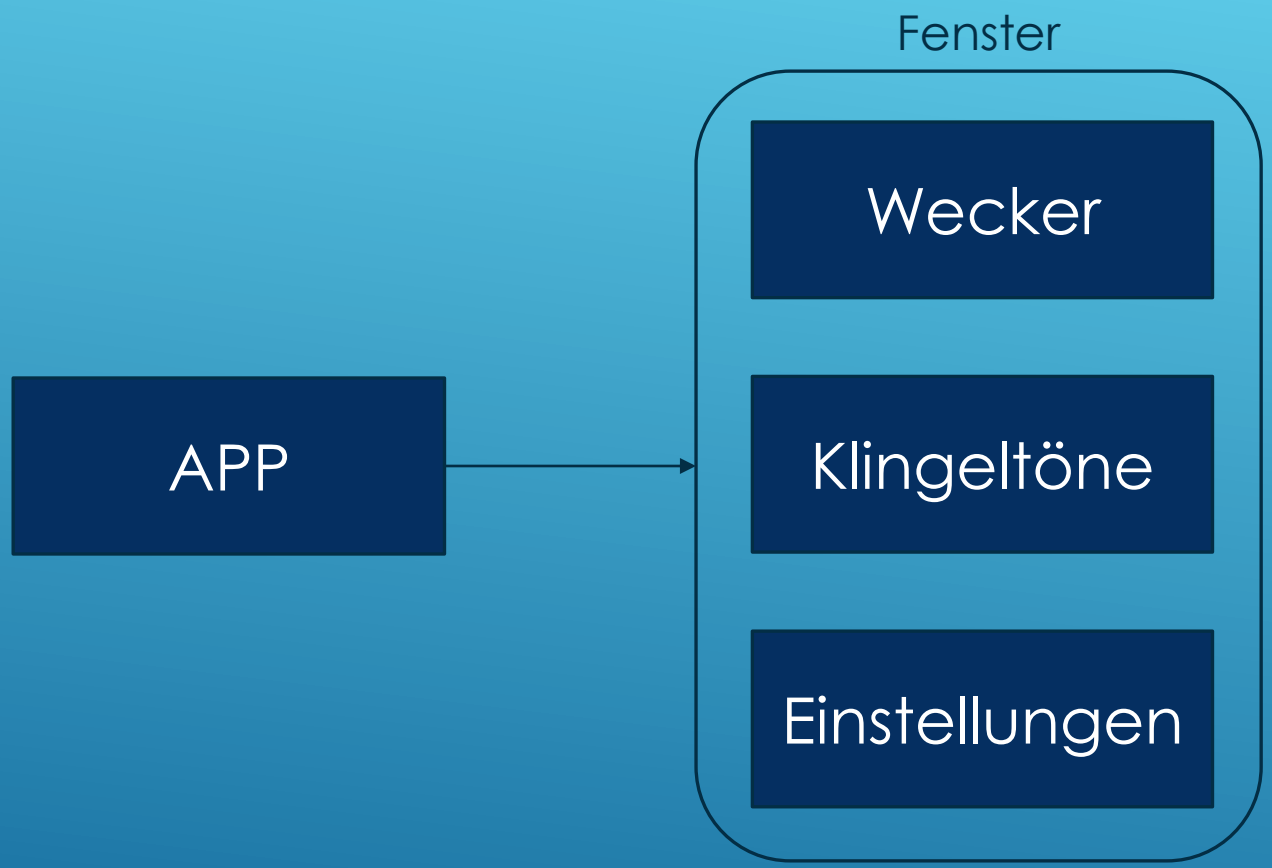
Wecker

Wetter

Einstellungen



APP


Fenster
Wecker
APP
Klingeltöne
Einstellungen

Wecker

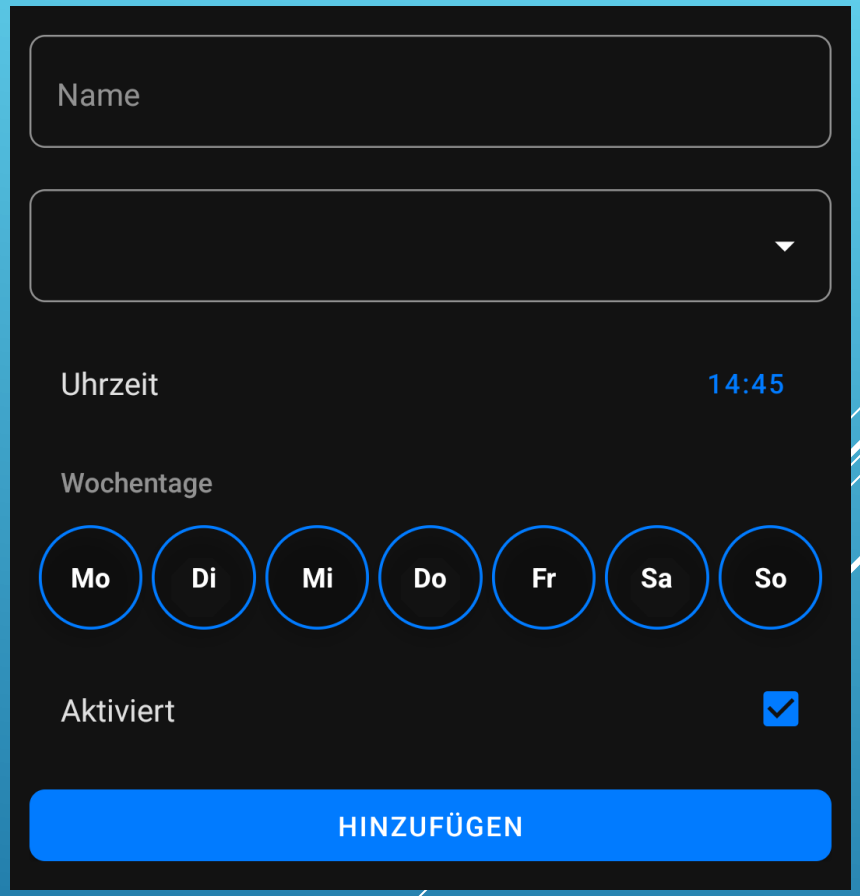
Klingeltöne

Einstellungen

Wecker → Erstellen

Klingeltöne

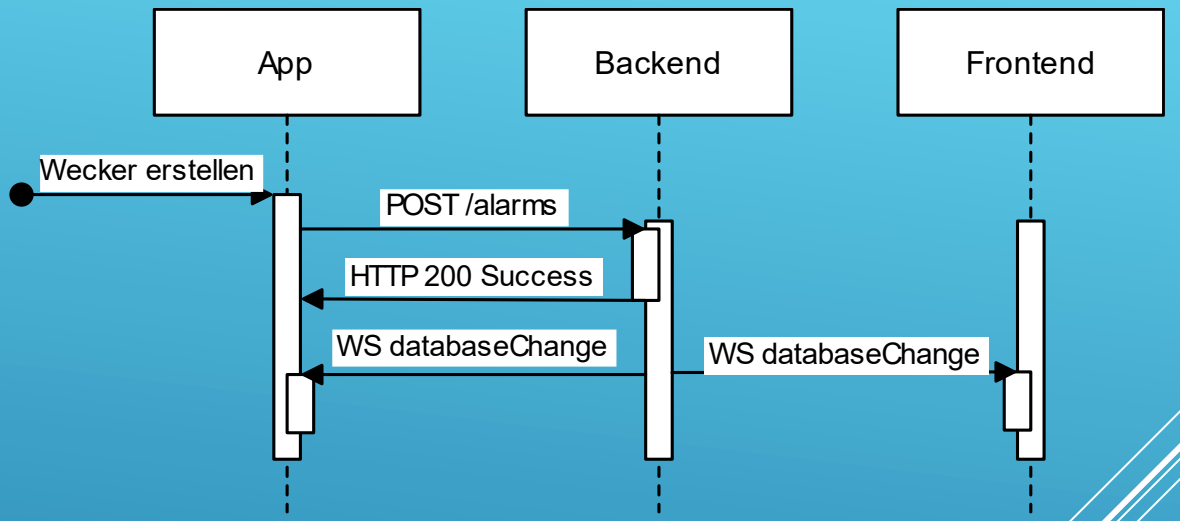
Einstellungen

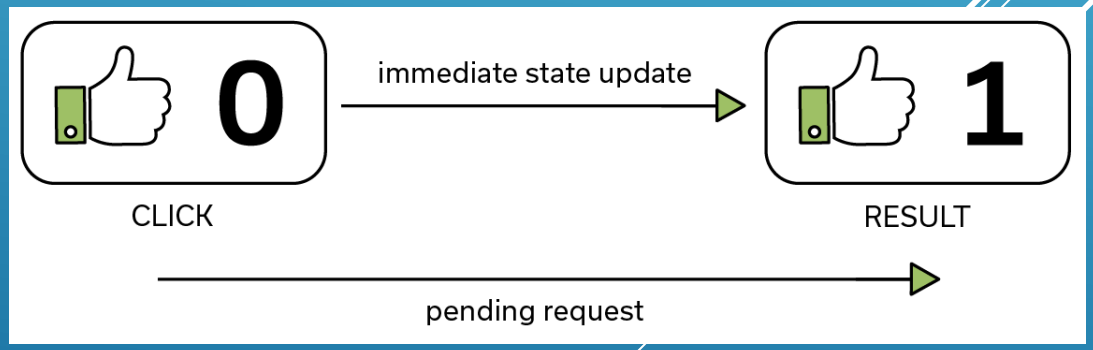


Wecker → Erstellen

Klingeltöne

Einstellungen

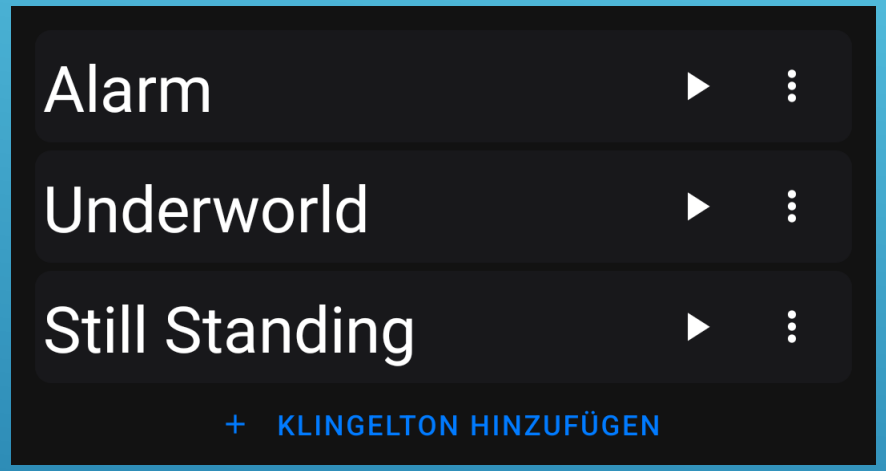




Wecker

Klingeltöne

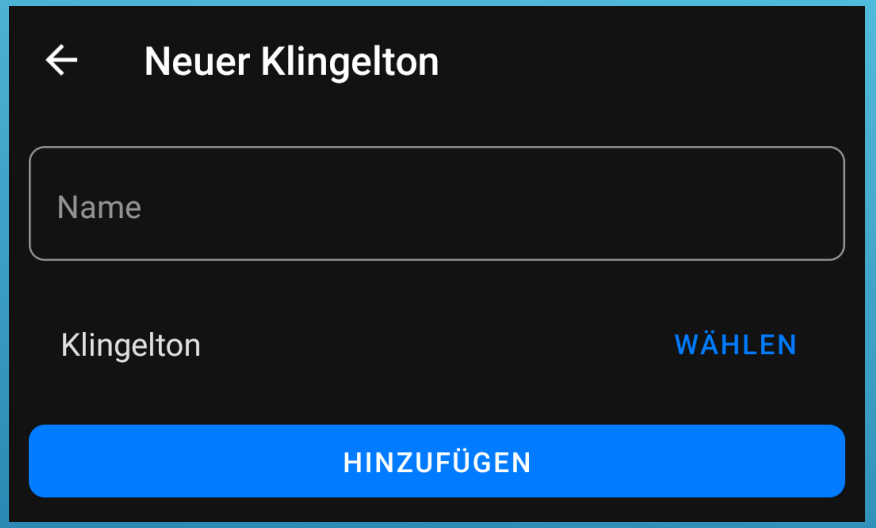
Einstellungen



Wecker

Klingeltöne → Erstellen

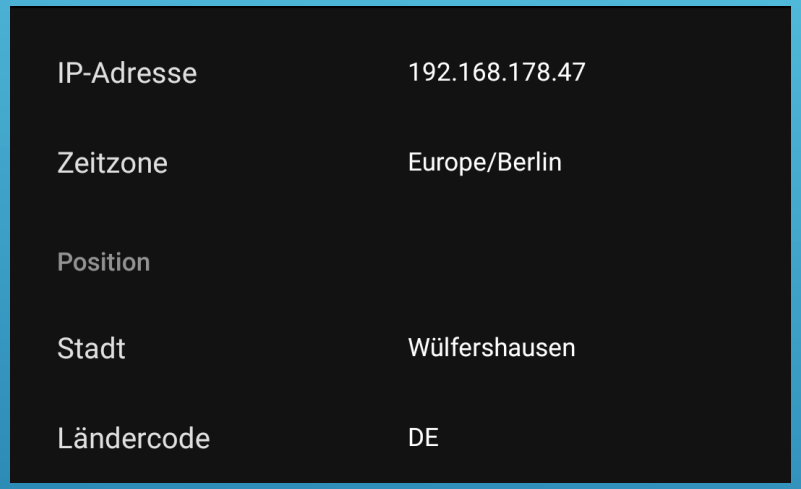
Einstellungen



Wecker

Klingeltöne

Einstellungen



FAZIT

vs.

- Verkehr
- Kalender
- ToDos
- Musikplayer
- Bildergalerie
- Smart Home
- OLED Display mit Sensor

AUSBLICK