
UKE
HAMBURG

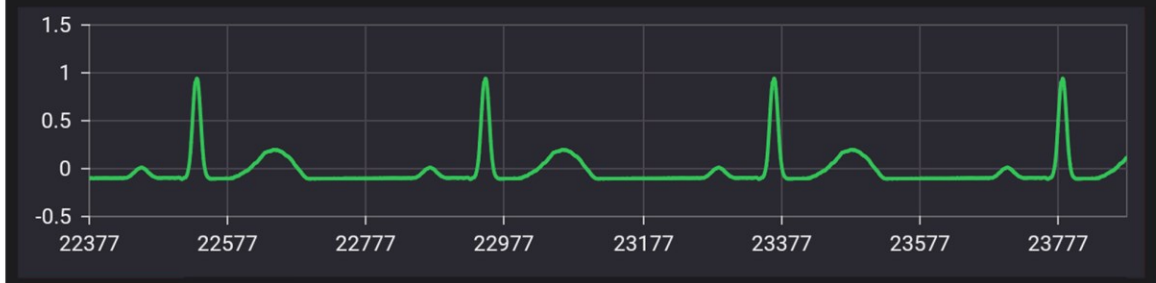

M-Lab


NOTARZT
112
FWI 701


corpuls³
Demo Modus
15:12:55
580 min
AED 1 Manual
Analyse 2 Charge
HF
60
SpO2
98
T1
37.0
AF
14
NIBD 02:18
123/83
(96)
CO2
37
QRS
Ansichten
Trend
LZ-EKG
R-EKG
NIBD
corpuls


WEINMANN
MEDUCORE Standard
Monitor
AED
Manuell
Abltg
BiLevel

VentCore



HF 85

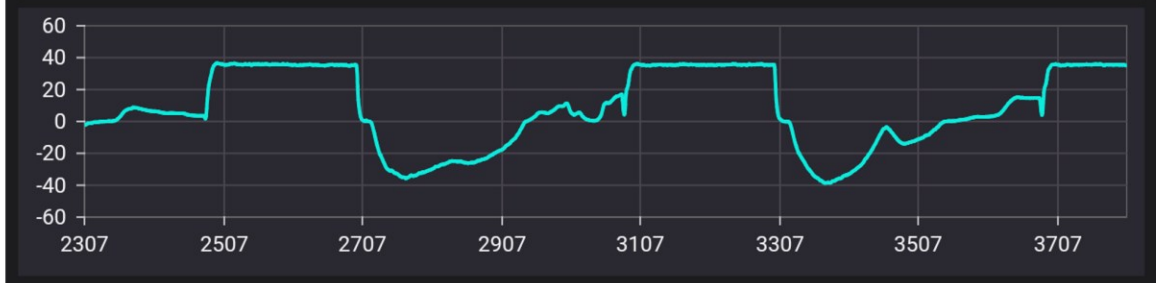
86

55 bpm

SpO2 100

70

90 %



Flow Graph Value

35

l/min

PAW Graph Value

8

mBar

Br. Freq.

AF 20

15

10 br/min

MVe

MVe 9.0

4.50

3.5 l/min

pPeak 50.12 mBar

pPlat 4.58 mBar

pMean 16.58 mBar

Heart Freq.

HF 100

86

50 bpm

IPPV

− Freq. 15 /min +

− Vt 300 ml +

− PEEP 60 mBar +

Acknowledge all Alarms

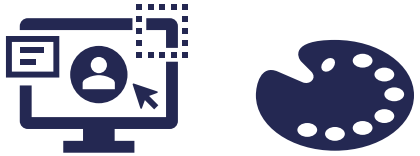
Single Alarm Conf

UKE Project 2022

3-in-1

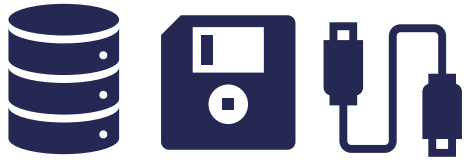
Scenarios

Tablet



Redesign

Alarm Management



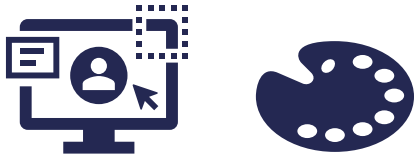
Mock Data

UKE Project 2022

3-in-1

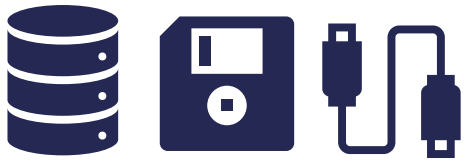
Scenarios

Tablet



Redesign

Alarm Management



Mock Data

Team UKE

Arne

System Design
Full Stack Developer

Max

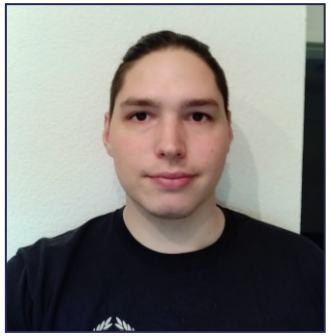
UX Design
Full Stack Developer

Noah

Data Engineer
Full Stack Developer

Mudi

Performance Engineer
Full Stack Developer



Corvin

Marketing
Documentation

Fynn

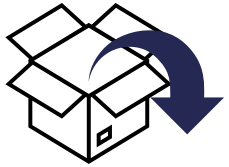
DevOps Engineer
Full Stack Developer

Anni

Marketing
Project Organisation

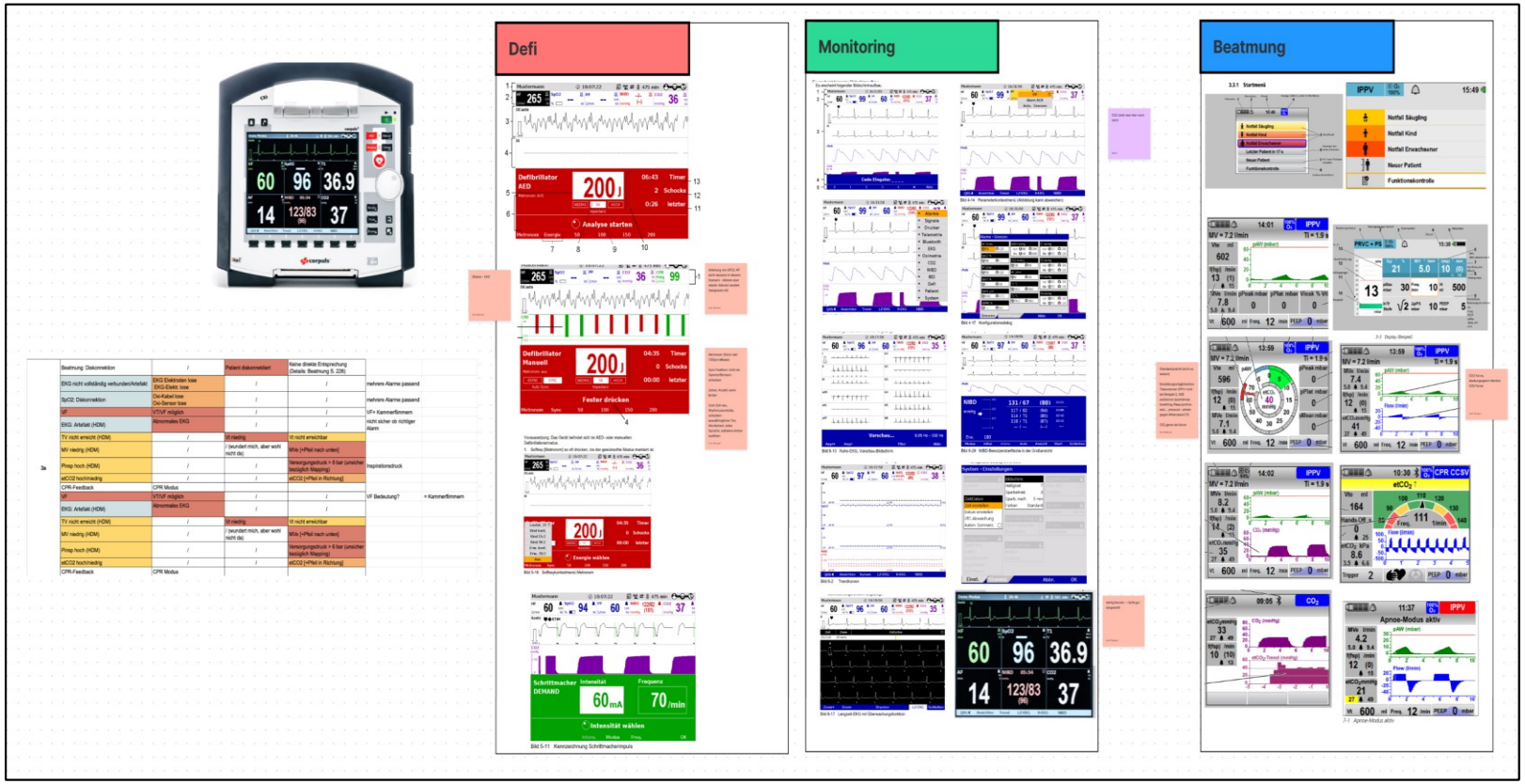
Project Journey



Requirements → Design & Data → Alarms & Sounds → Release

Project Journey



Requirements Analysis Document

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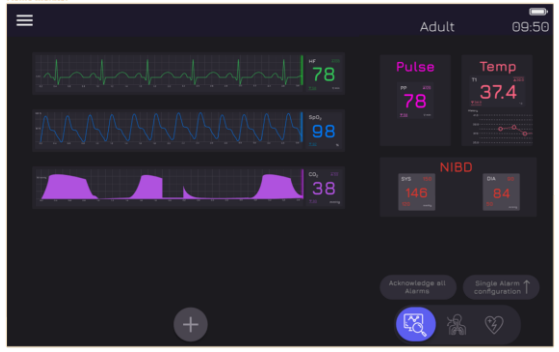
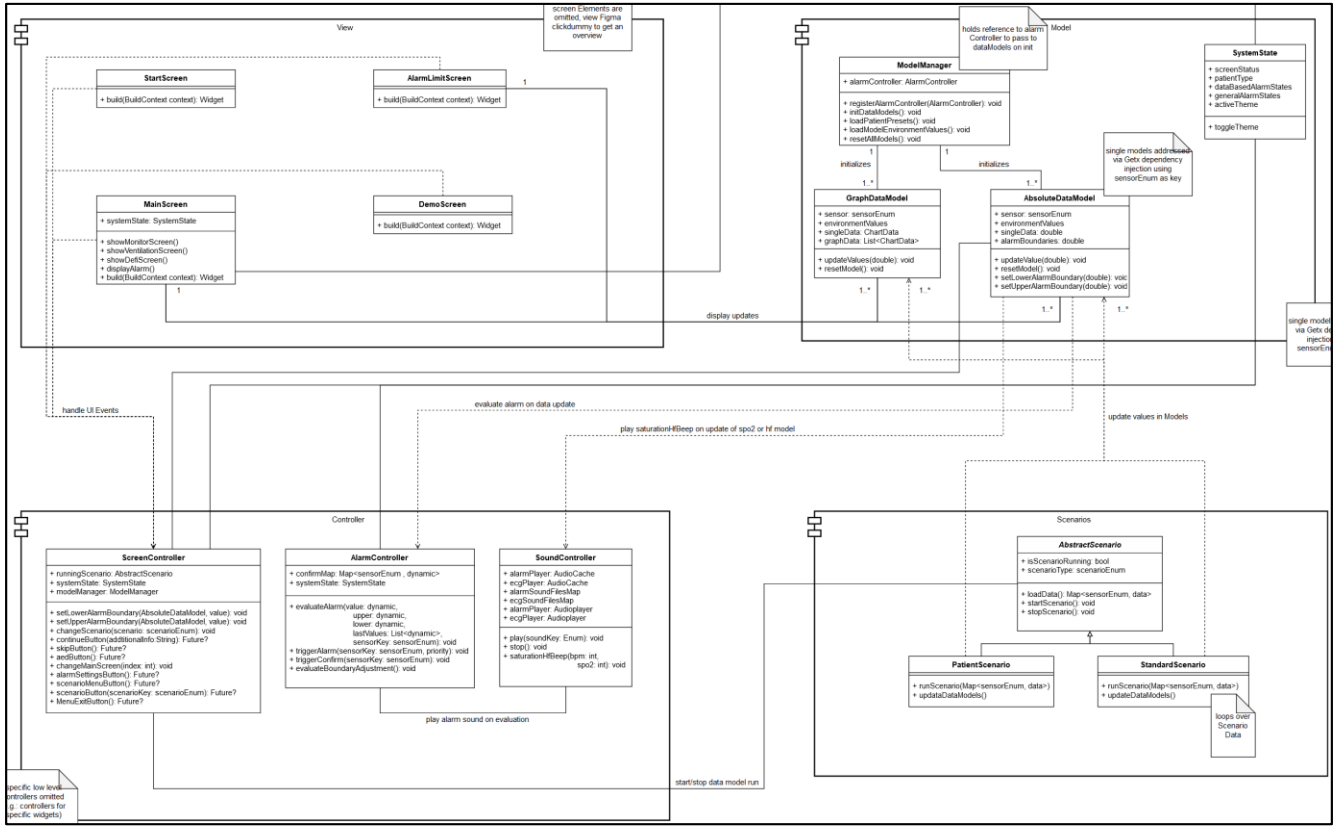
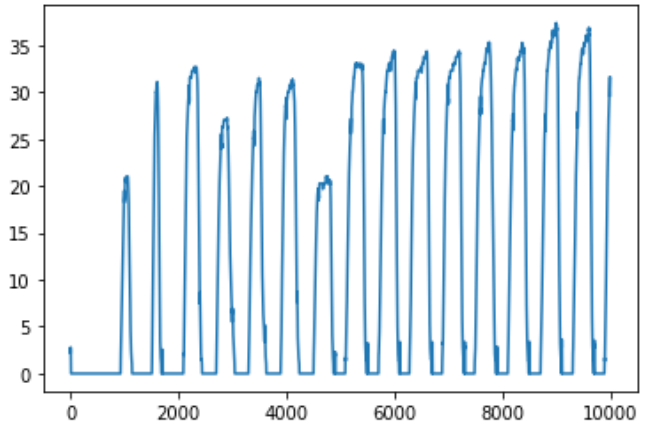
Project Journey





Project Journey



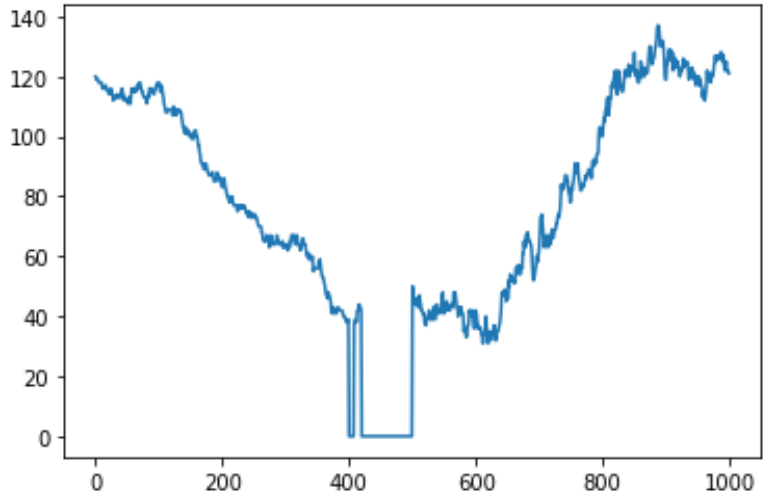

```
co2_data = co2_data * 7.50062
```

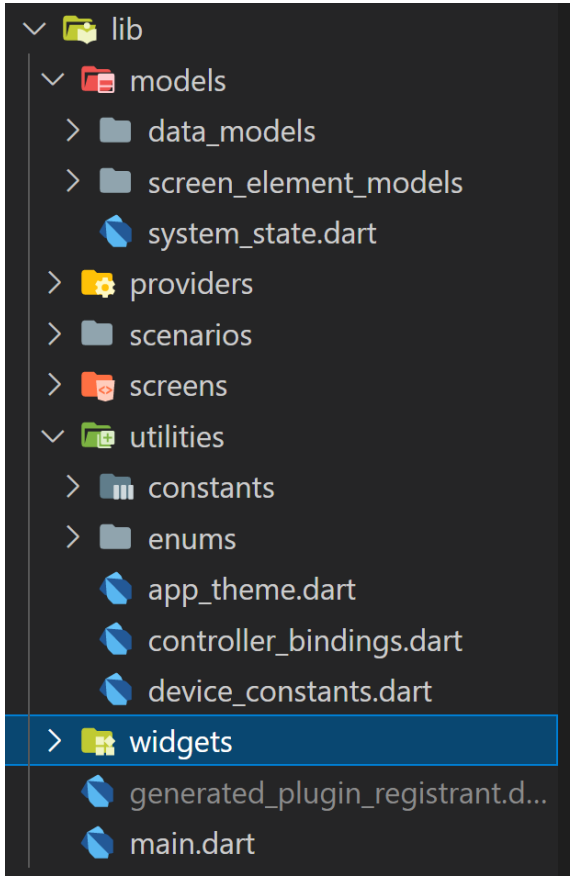
```
co2_data = simple_moving_avg(co2_data, 10)
```

```
for k,v in enumerate(co2_data):
    if v < 1:
        co2_data[k] = 0
plt.plot(co2_data[0:10000])
plt.show
```

```
# Calculates the simple moving average
# We use this function for noise reduction in our data
def simple_moving_avg(data, n):
    averaged = []
    for i in range(len(data)):
        temp_value = 0
        for j in range(n):
            # no check for loopback when i-j < 0
            temp_value += data[i-j]
        averaged.append(1/n * temp_value)
    return averaged

# Example call for simple_moving_avg
# avg = simple_moving_avg(dictionarylist[5]["data"], 10)
```





Project Journey

4. "Elektrotherapie"				
extr. Tachykardie/VT	160/min	x		
SpO2-Signal schwach				x
NIBP niedrig			x	
etCO2 niedrig/sprunghaft	24 mmHg	x		
SpO2 niedrig	74%	x		
SpO2 niedrig			x	
SpO2-Signal schlecht				x
HF	88/min			
RR	120/88 mmHg			
etCO2	42 mmHg			
100 Joule				

current alarm high	J	J	N	J	N	N
current alarm middle	N	N	J	N	J	J
current alarm confirmed	-	-	-	-	-	J
new alarm high	J	N	N	J	J	N
new alarm middle	N	J	J	N	N	J
new alarm with new message	N	-	N	J	-	J
trigger new alarm				X	X	X
don't trigger alarm	X	X	X			

Project Journey

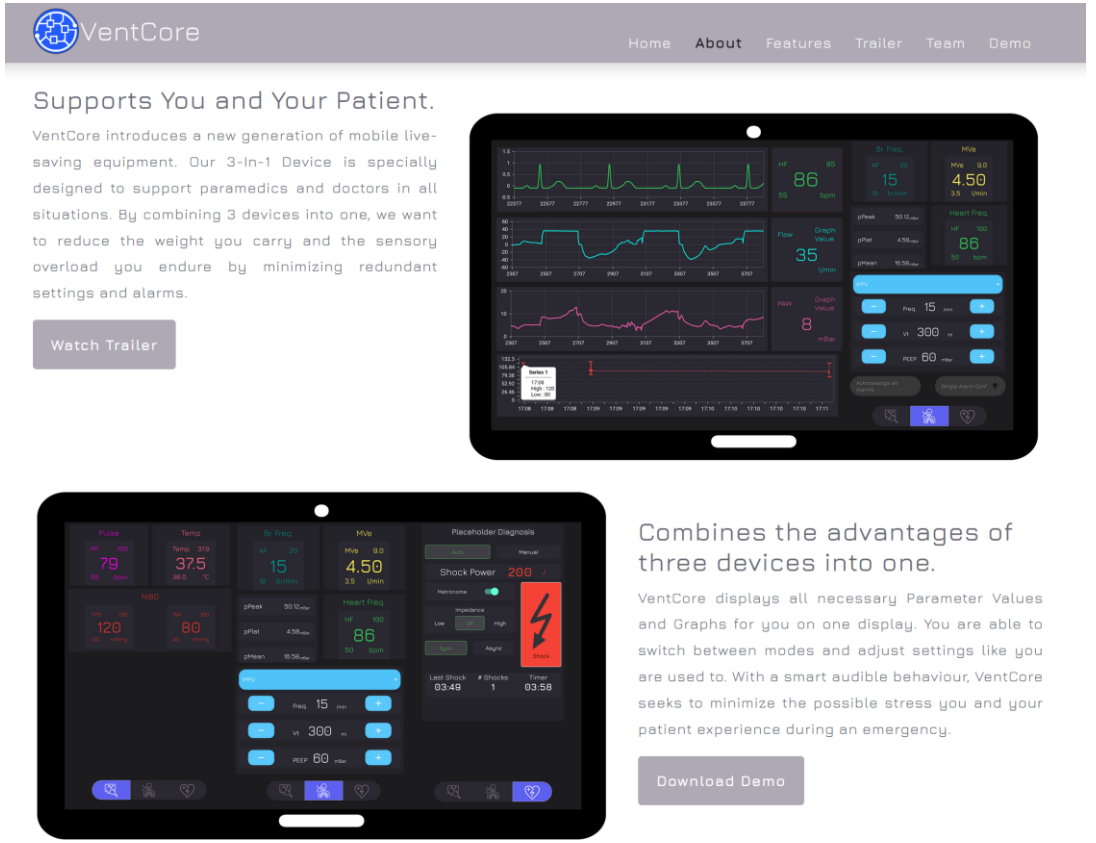
VentCore

Your patient has been connected to the device.

1. Choose a patient preset and set the height lower and the weight higher.
2. Change the alarm limits of the heart frequency. Set the upper boundary +15 higher and the lower boundary -5 lower.

Your patients status is getting worse. He needs the Ventilator now.

3. Change the ventilaton settings. Set the breath frequency +2 higher. The PEEP can be increased by +3.
4. You are interested in the last NIBP measurements. Change back to Monitoring and add the NIBP-History to the screen.



Project Journey

VentCore

VentCore

Patient Presets

Switching Modes

Adjusting Limits

Load & Shock Defi

Adding Graphs

Confirm Alarms

UKE M-Lab 2022

151 Issues

610 Commits

39.504 Codelines

UKE M-Lab 2022

VentCore

UKE HAMBURG × Universität Hamburg
DER FORSCHUNG | DER LEHRE | DER BILDUNG
M-Lab

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Corvin Biebach, Anni Reinert



Supervisor: Tim Puhlfürß