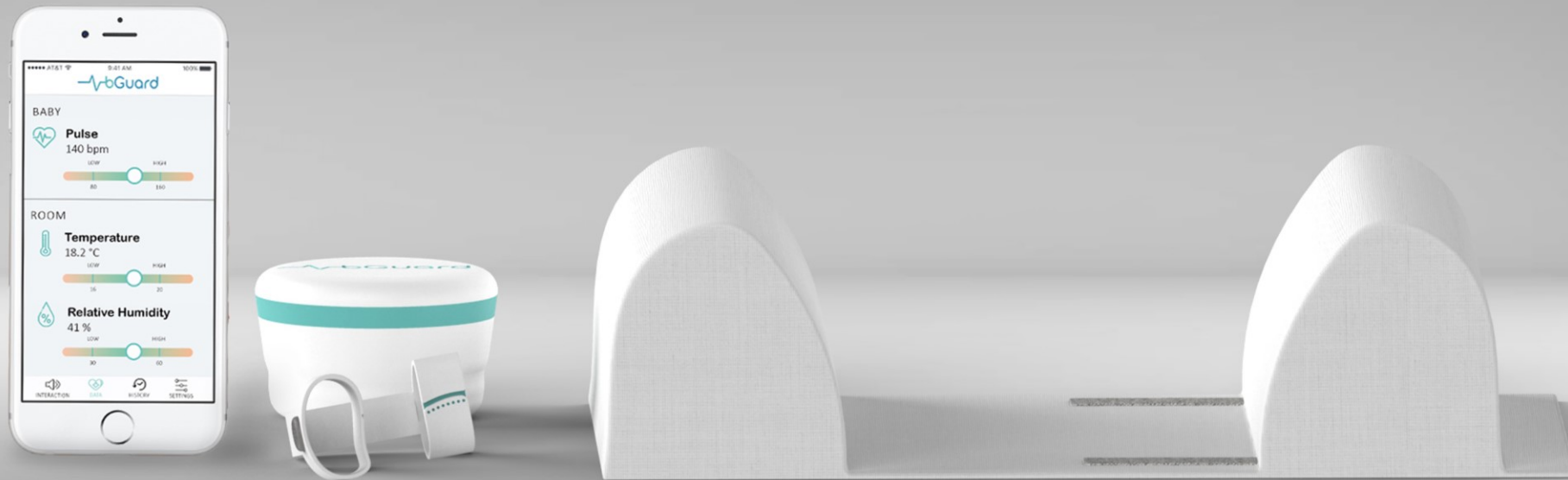


# FINAL PRESENTATION

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Alexandre Reis, Elien Gielen, Ko Wopereis,  
Marcel Pasternak, Tobias Schneider, Vaido Sooäär



# WHAT WE DO

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**stress relief**  
for worried  
parents

BY



**monitoring**  
their baby

AND



giving live  
**updates**

# WHAT WE DO

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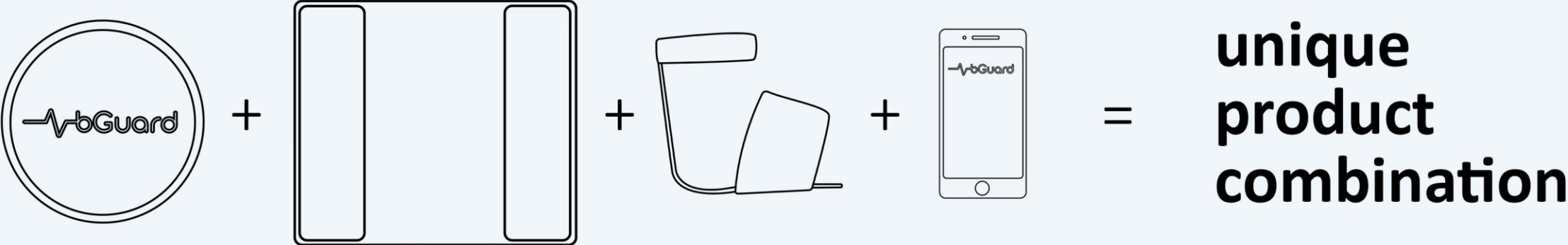
AND



create the **best**  
possible sleeping  
**environment**

**lower the risk** of  
Sudden Infant  
Death Syndrome

# MULTIFUNCTIONAL



→ unseen combination of parameters

# HOW IT WORKS



# HOME STATION

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—bGuard

measures air quality

temperature



CO<sub>2</sub>



relative humidity



# SMART SOCK

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—bGuard

measures vital parameter

keeps track of the  
baby's pulse



# SMART PILLOW

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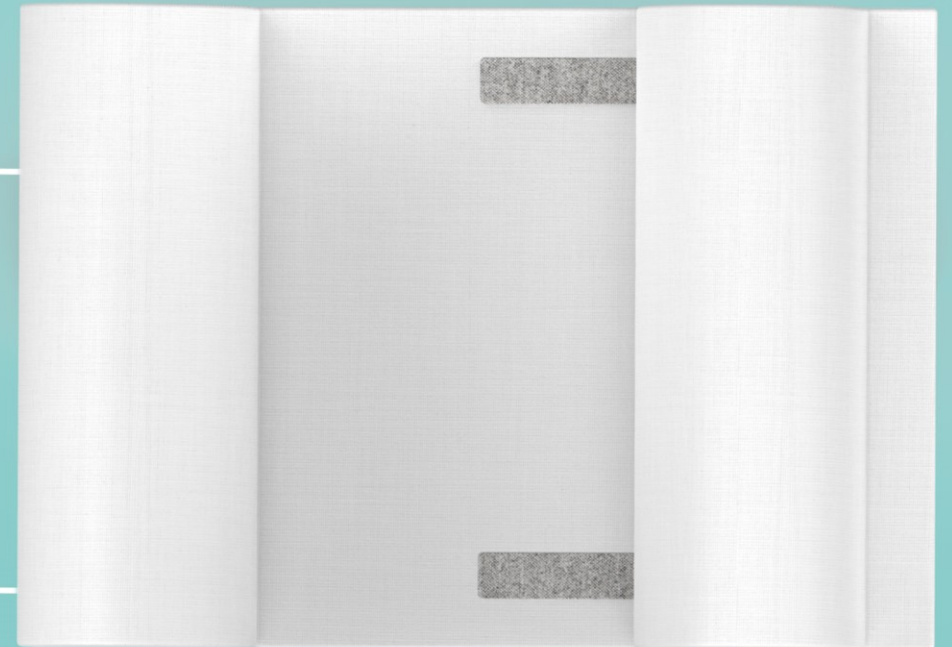
—bGuard

interaction & prevention

cry detection



special shape  
lowers the risk of SIDS

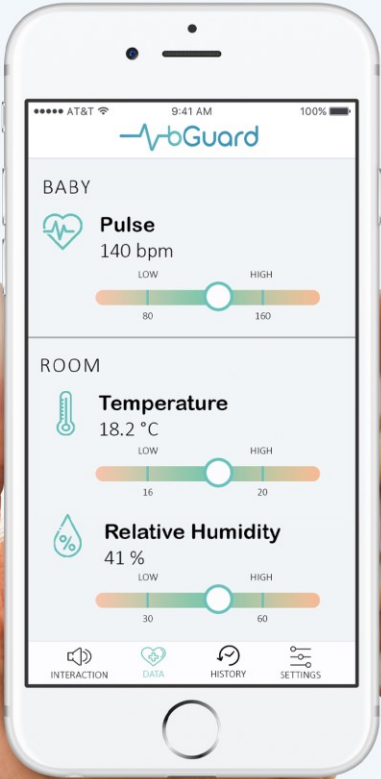




# MOBILE APPLICATION



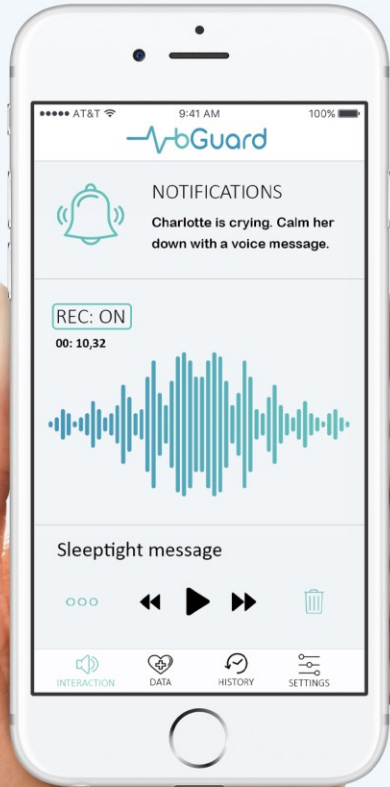
data



history



interaction



# MATERIALS

---

 bGuard

## ABS

- colourable
- durable
- high yield strength



# MATERIALS

---

—bGuard

## Lyocell

- eco-friendly
- hygienic

## ABS

- sensor case



# MATERIALS

---

## Polyurethane foam

- open cell
- light

## Lyocell cover

- eco-friendly
- hygienic



# TESTING

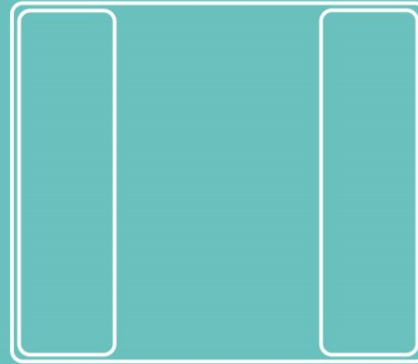
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Simulation crash test: 100 N

DHT22: calibration

SGP30: calibration



Microphone MAX4466:  
calibration

reaction to crying



Pulse sensor  
testing

# TESTING

---

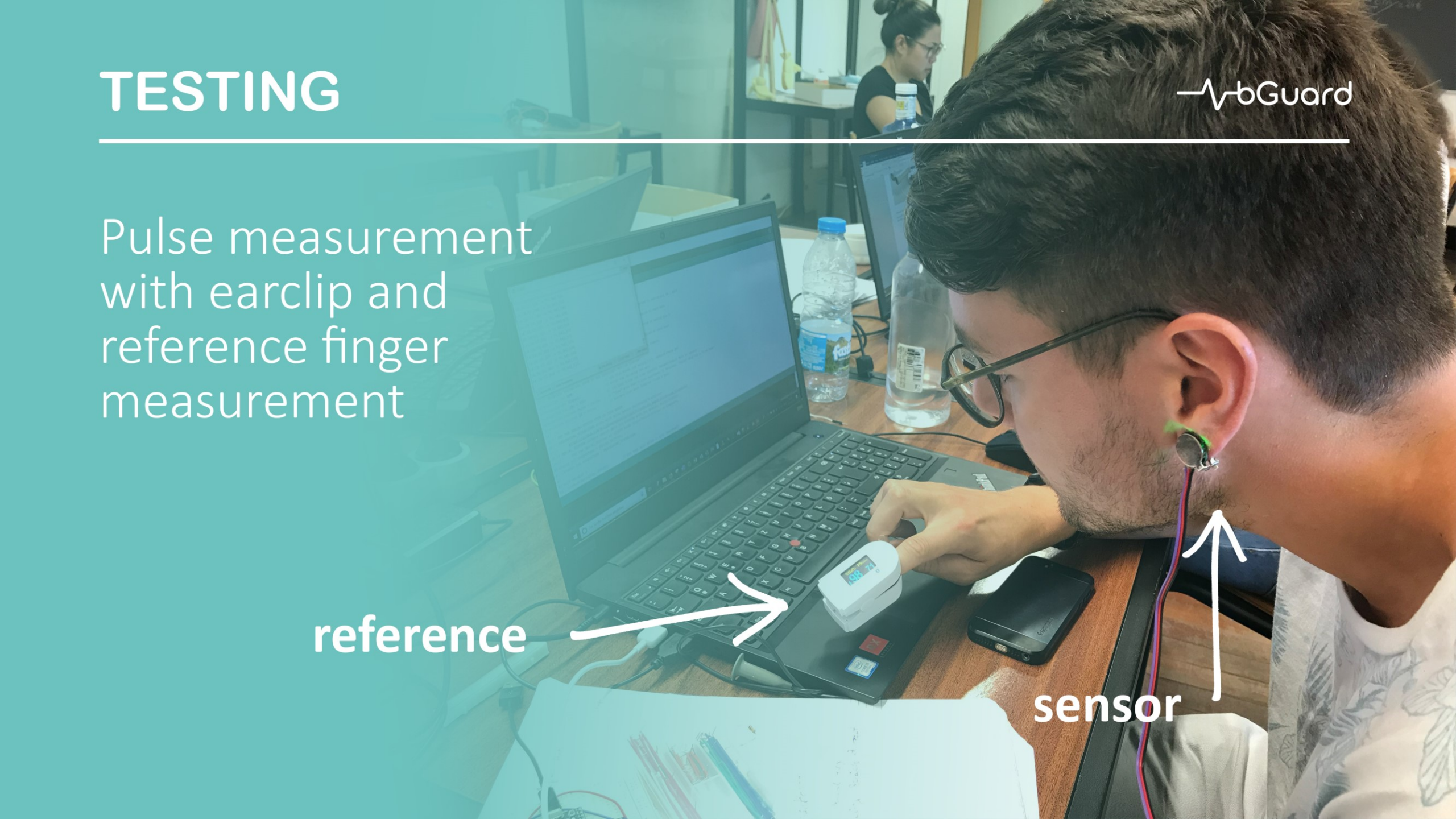
—bGuard

Pulse measurement  
with earclip and  
reference finger  
measurement

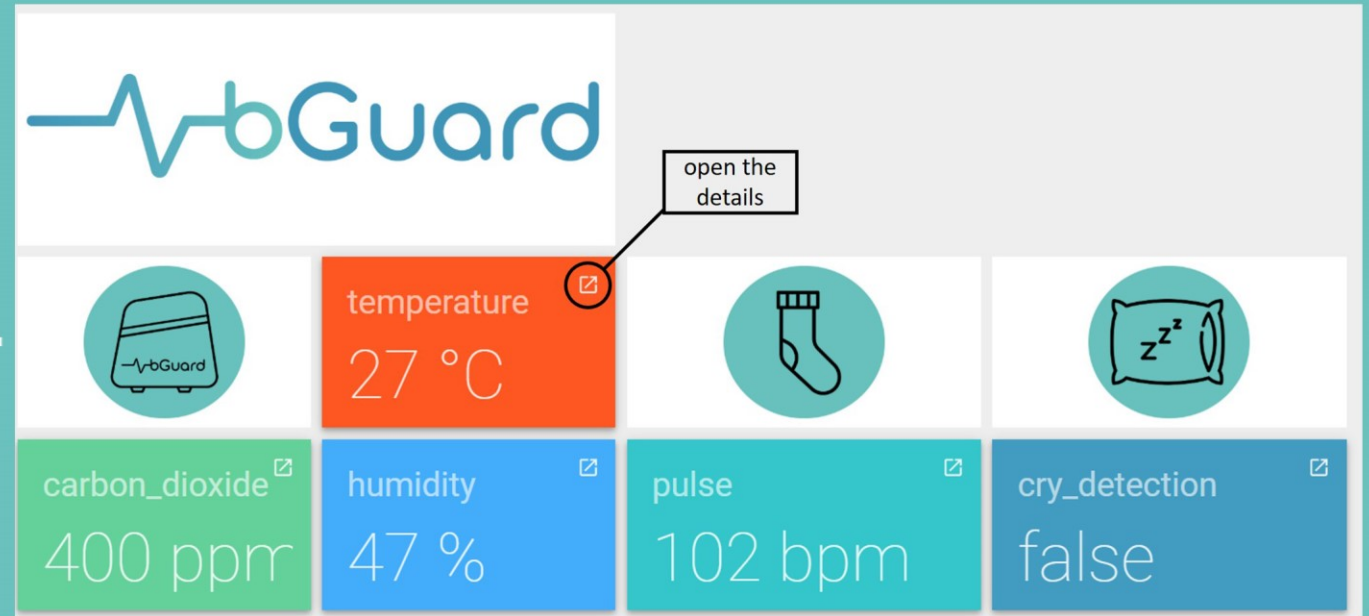
reference



sensor



# INTERNET OF THINGS

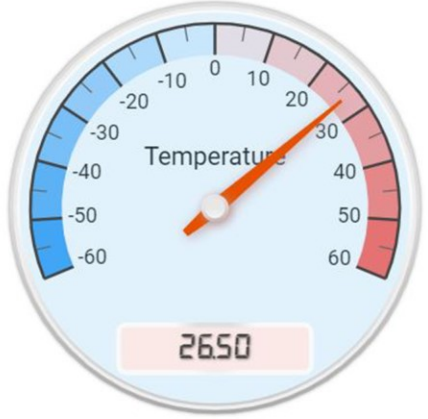


→ testing: real-time monitoring with IoT

**Thingsboard:** replacement for application

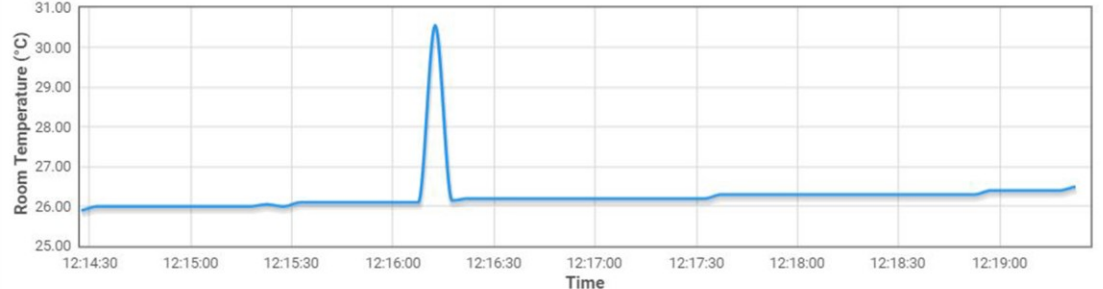
# INTERNET OF THINGS

bGuard > Room Temperature:Temperature details bGuard Entities Realtime - last 5 minutes



Temperature  
26.50

### Room Temperature history



Room Temperature (°C)

Time

min max avg  
25.9 30.55 26.27

### Minimum Temperature

Value\*

16

### Maximum Temperature

Value\*

30

### Alarms

Realtime - last 7 days

Created time	Originator	Type	Severity	Status
2019-06-13 12:16:11	Room Temperature	Warning	Warning	Active Unacknowledged

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# CONCLUSION

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## challenges

lack of prior knowledge

cultural differences

communication in English

## objectives achieved

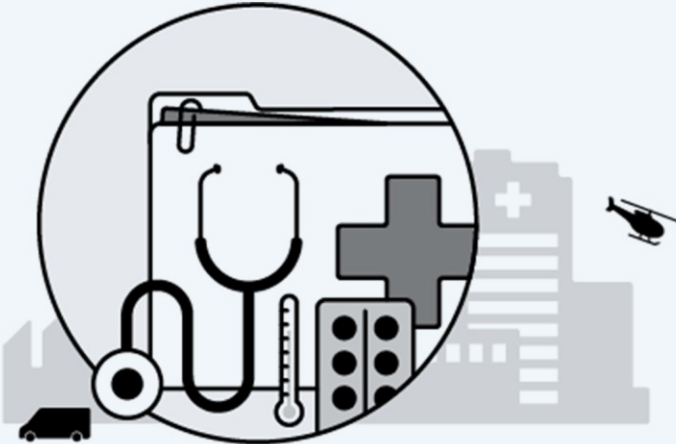
✔ multifunctional product

✔ unique product combination

# FUTURE DEVELOPMENT



mobile application



medical device



electronic components



THANK YOU FOR LISTENING

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—bGuard

“ We are SleepSense  
and we provide  
sleepcurity for you  
and your baby.”

isep

Instituto Superior de  
Engenharia do Porto