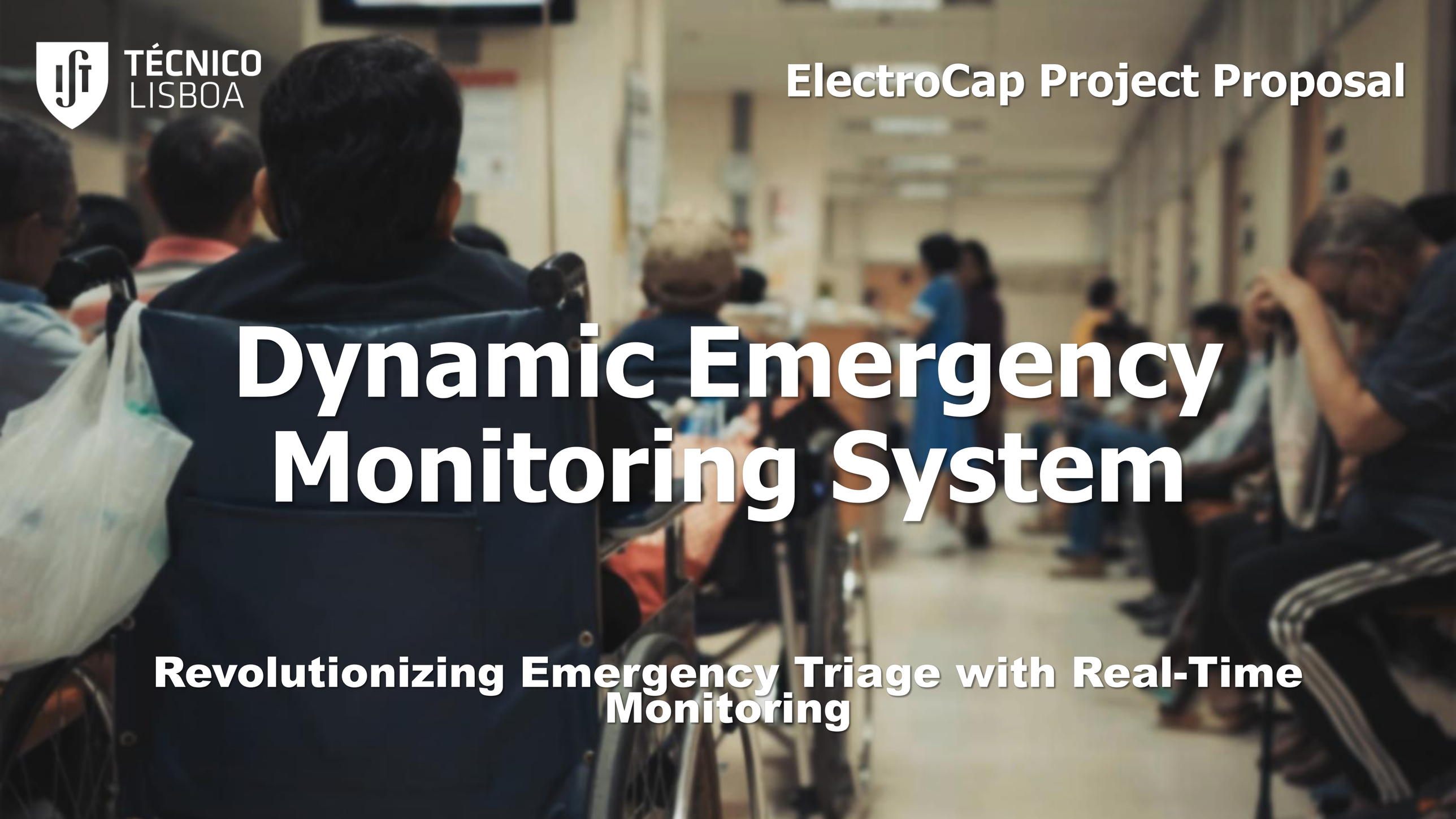


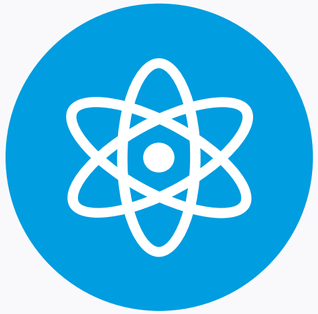
TÉCNICO LISBOA

ElectroCap Project Proposal

Dynamic Emergency Monitoring System

Revolutionizing Emergency Triage with Real-Time Monitoring

1. Advisors and Mentor



Scientific Advisor:
Prof. Teresa Vazão

Scientific Co-advisor: —

Coordinator: —

Mentor: —

Emergency Triage is Failing

Patients Are at Risk

“Homem de 66 anos encontrado morto nas urgências do Hospital de Coimbra depois de 12 horas de espera” (DN, 2024)

“Regulador diz que hospital “não acautelou acompanhamento” de idosa que morreu nas urgências” (Observador, 2024)

“Hospital de Évora confirma morte de utente no serviço de urgência” (Expresso, 2023)

2. Problem

🖥️ Manual triage systems are **outdated** and **static**.

⚠️ Critical patients can **deteriorate unnoticed**.

📉 Healthcare staff are **overwhelmed** and **resources misallocated**.

“ it’s time for health facilities to embrace new patient monitoring technologies to support them in caring for patients” (O’Malley, T. , 2020)

3. Technological solution

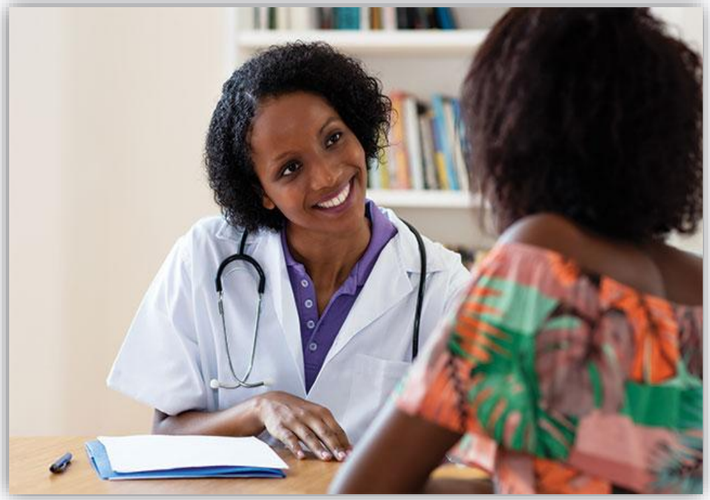
Wearable Sensors

Real-Time Data Transmission

Dynamic Data Prioritization

4. Solution beneficiaries

Critical patients



Healthcare providers

Families and caregivers

5. Solution requirements

Real-Time Vital Sign Measurement

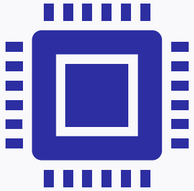
Low Latency Alerts

Usability and Comfort

Scalability and Cost-Efficiency

6. Technical challenges

Sensor Accuracy and Reliability



Real-Time Data Processing

Connectivity Issues

Dynamic Prioritization Algorithm

7. Testing and validation metrics

8. Partners

Future Collaborations

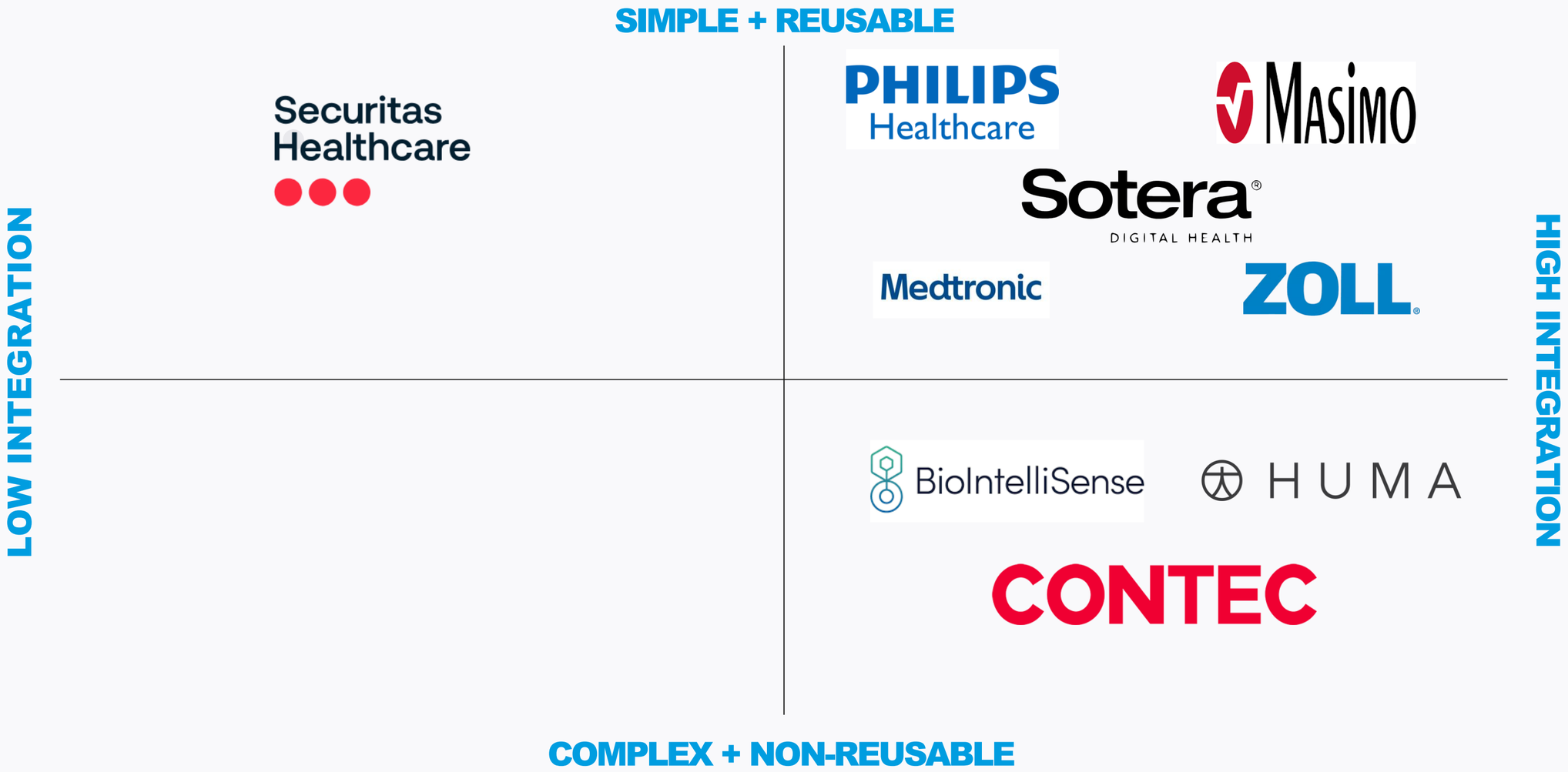
Engagement with Healthcare Providers

Testing in Real-life Scenarios

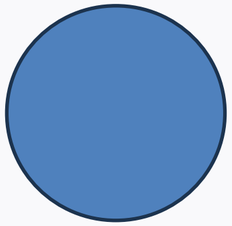
9. Current solutions and previous work

- Traditional triage systems
- ICU monitoring systems
- Wearable devices(smartwatches)
- CEIIA 2.0 project
- Real-Time Monitoring Electronic Triage Tag System

10. Competitors

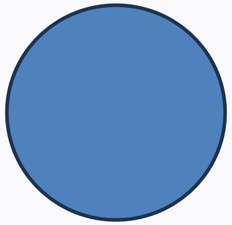


11. Team



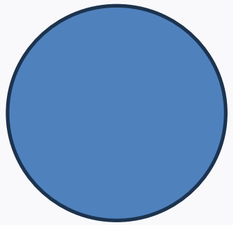
Filipe Esteves

103404



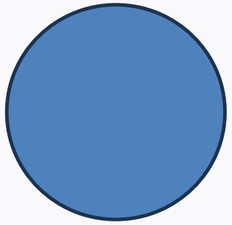
João Veríssimo

103874



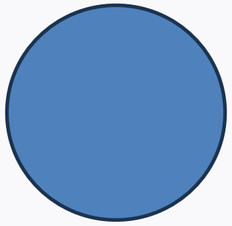
Marco Matos

105932



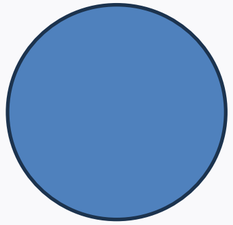
Tomás Modesto

105944



João Ferreira

106081



Gustavo Zacarias

106128

12. Division of labor (I)

João Veríssimo	Filipe Esteves	Marco Matos
Research/ Interviews	**Bracelet(S)**	**Algorithms (ML)**
Bracelet (S)	Server & Comms	**Server & Comms**
App	Website	Bracelet (H)
Algorithms (ML)	Research	Research

H – Hardware | S – Software | ML – Machine Learning | Comms – Communications

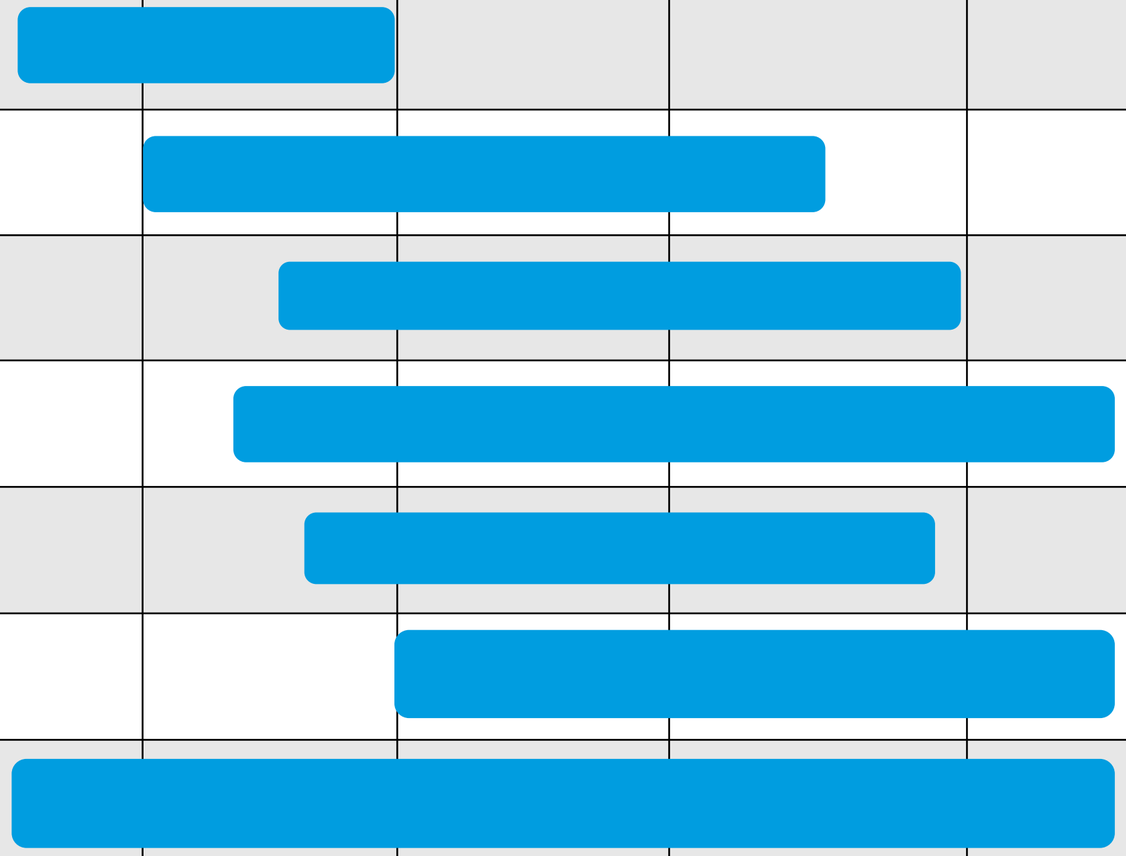
13. Division of labor (II)

Tomás Modesto	João Ferreira	Gustavo Zacarias
Bracelet (H)	**App**	**Website**
App	Server & Comms	Algorithms (ML)
Research	Bracelet (H)	App
Bracelet (S)	Research	Research

H – Hardware | S – Software | ML – Machine Learning | Comms – Communications

14. Schedule

Tasks by field \ Months	Feb	Mar	Apr	May	Jun	July
Research/Interviews						
Bracelet (Hardware)						
Bracelet (Software)						
Algorithms						
Server						
App						
Website & Blog						



15. References

1. *Tempo de espera: como funciona a triagem na urgência do hospital?* (n.d.). DECO PROTESTE. https://www.deco.proteste.pt/saude/hospitais-servicos/dicas/tempo-espera-como-funciona-triagem-urgencia-hospital
2. Rádio Renascença. (2022, December 6). *Urgências no Hospital Santa Maria com “situação mais normalizada” - Renascença*. Rádio Renascença. https://rr.sapo.pt/noticia/pais/2022/12/06/urgencias-no-hospital-santa-maria-com-situacao-mais-normalizada/310776/
3. Arnone, R. (2024). *Pulseiras Triagem Manchester*. Gisband.com. https://www.gisband.com/index.php/produtos/2-gisband/77-pulseiras-para-triagem-manchester
4. Lisboa, T. (n.d.). Projeto desenvolvido pela JUNITEC é finalista de prémio internacional. Técnico Lisboa. https://tecnico.ulisboa.pt/pt/noticias/campus-e-comunidade/projeto-desenvolvido-pela-junitec-e-finalista-de-premio-internacional/
5. Parashar, A. (2024, October 20). NHS set to give millions smartwatches and wearable tech to track their health as part of Labour’s... Mail Online; Daily Mail. https://www.dailymail.co.uk/news/article-13979353/NHS-set-millions-smartwatches-wearable-tech-track-health.html
6. Park, J. Y. (2021). Real-Time Monitoring Electronic Triage Tag System for Improving Survival Rate in Disaster-Induced Mass Casualty Incidents. Healthcare, 9(7), 877. https://doi.org/10.3390/healthcare9070877
7. Cuidados de saúde significativos e inovadores | Philips Healthcare. (n.d.). Philips. https://www.philips.pt/healthcare
8. Healthcare technology for the digital age. (2023). Medtronic.com. https://www.medtronic.com/en-us/index.html
9. Home. (n.d.). BioIntelliSense. https://www.biointellisense.com/
10. Lusa, A. (2024, November 14). Regulador diz que hospital “não acautelou acompanhamento” de idosa que morreu nas urgências. Observador. https://observador.pt/2024/11/14/regulador-diz-que-hospital-nao-acautelou-acompanhamento-de-idosa-que-morreu-nas-urgencias/
11. Masimo - Home. (n.d.). Www.masimo.com. https://www.masimo.com/
12. Patient Vital Signs Monitoring System | Sotera Digital Health. (n.d.). Soteradigitalhealth.com. https://soteradigitalhealth.com/
13. Revolutionising Healthcare with Digital-First Solutions | Huma. (n.d.). Www.huma.com. https://www.huma.com/us-remote-patient-monitoring
14. Securitas Healthcare. (2025). Securitashealthcare.com. https://www.securitashealthcare.com/
15. SIC Notícias. (2023, March 2). Hospital de Évora confirma morte de utente no serviço de urgência. Expresso. https://expresso.pt/sociedade/saude/2023-03-02-Hospital-de-Evora-confirma-morte-de-utente-no-servico-de-urgencia-97d66192
16. ZOLL Medical Corporation. (n.d.). Staging.zoll.com. https://www.zoll.com/
17. O’Malley, T. (2020, November 12). The need for continuous monitoring in today’s healthcare system. Managed Healthcare Executive. https://www.managedhealthcareexecutive.com/view/need-continuous-monitoring-todays-healthcare-system

Thank you

TÉCNICO
LISBOA