

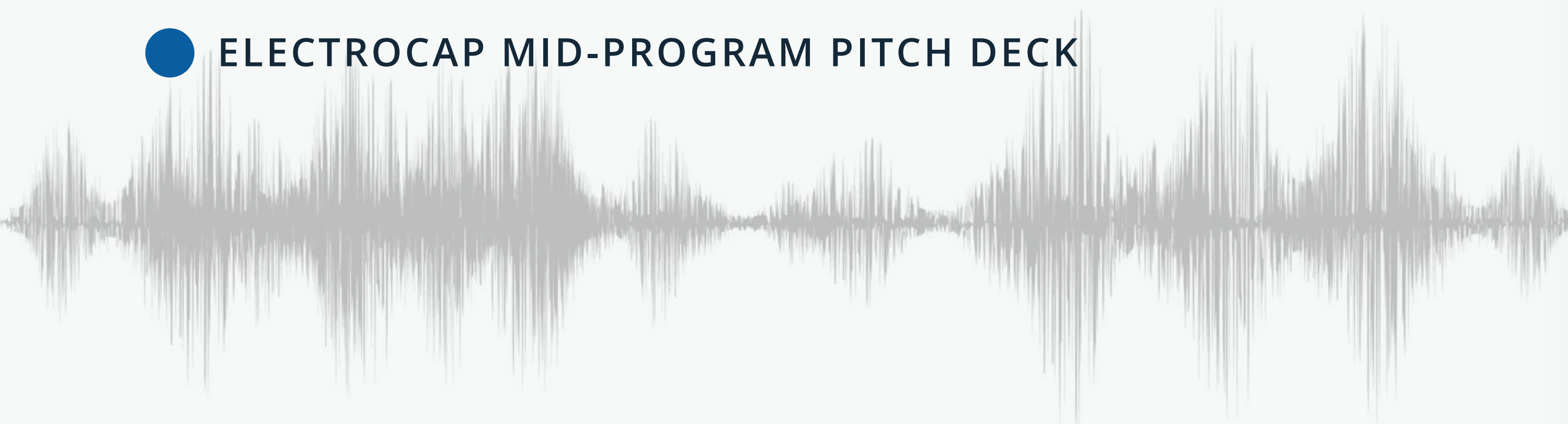


Team 8



SAFENOISE

● ELECTROCAP MID-PROGRAM PITCH DECK



Website: Team 8

<https://web.tecnico.ulisboa.pt/~ist1106327/public/>



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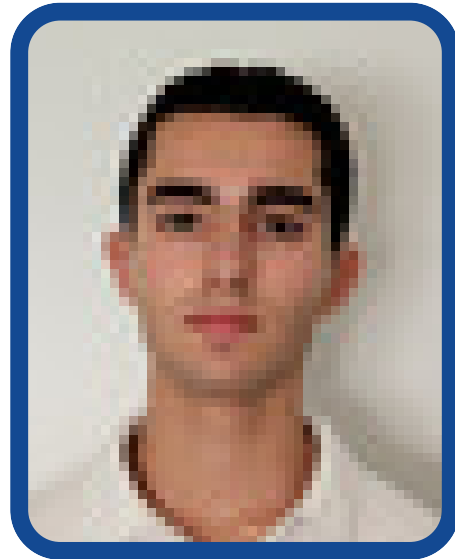


April 2025

ABOUT US

WHO WE ARE

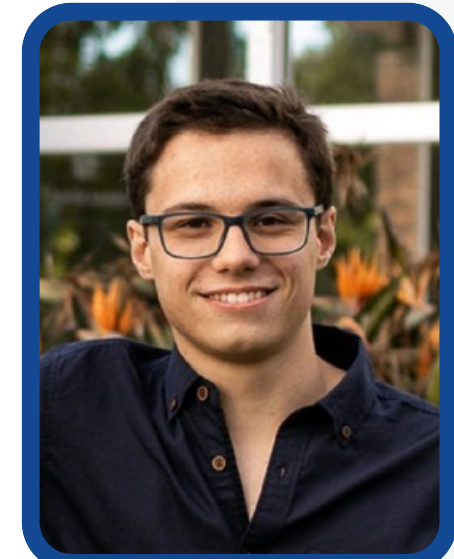
Team 8



Tiago Gonçalves



David Antunes



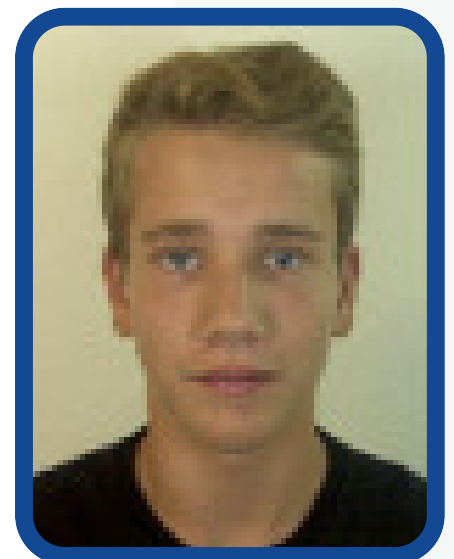
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PROBLEM DEFINITION

- Workers exposed to environments with intense but non-permanent noise often neglect the use of Personal Protective Equipment (PPE).
- Occupational Hearing Loss is one of the most common work-related illnesses, often going unnoticed until irreversible damage occurs.
- Workplace safety personnel lack adequate tools to measure and analyze the severity of this issue.

SOLUTION BENEFICIARIES



01 **Workers and Employers**

Workers become aware of noise levels through real-time alerts, reducing the risk of hearing loss caused by improper PPE usage.

02 **Ineffective Digital Presence**

Employers benefit by minimizing workplace injuries and avoiding legal responsibilities.

03 **Occupational health care**

Occupational health care can use this data to improving support.

04 **Technicians of Safety and Health**

Technicians of Safety and Health at Work can get more data to support improvements in workplace and raise awareness to the importance of the use of PPE.

PARTNERS

OUR CLIENTS COME FROM EVERYWHERE



With more than 12,000 employees and operations in Spain, France, Italy, Portugal, the United Kingdom, Ireland, Turkey, Luxembourg, the Netherlands, the United States and Poland, the Saica Group provides sustainable solutions for paper and packaging manufacturing, as well as for waste management and recovery. Saica has been developing sustainable and innovative solutions for more than eight decades.



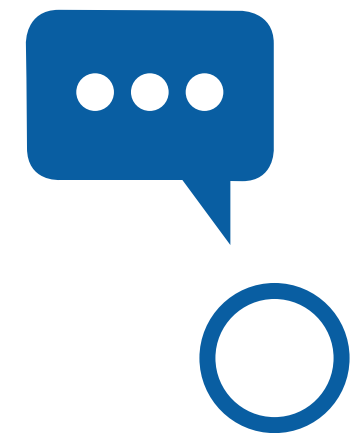
Saica Pack, Loures

The Saica Group provides sustainable solutions for paper and packaging manufacturing, as well as for waste management and recovery

Others

During P3, we had the opportunity to talk with several companies. Some of them helped us achieve the specifications of our prototype and provided other information.

GENERAL CONCLUSIONS FROM THE INTERVIEWS



01 Problem confirmed:

- Negligence in using EPI in noisy environments is a real issue, especially in sectors like construction and industry.
- There are some gaps/failures in the products already available on the market.

02 Proposed solutions:

- Portable devices are preferred for dynamic environments.
- Static devices are suitable for controlled environments.

03 Priority features:

- Real-time alerts.
- Verification of correct EPI usage.
- Daily reports for monitoring and awareness.
- Affordable cost and ease of use.

04 Standards and legislation:

- The solution must comply with applicable standards and legislation, such as Decree-Law No. 182/2006 and the NP EN ISO 9612:2011 and EN 458:2016 standards.

COMPETITORS AND PREVIOUS WORK

COMPETITORS

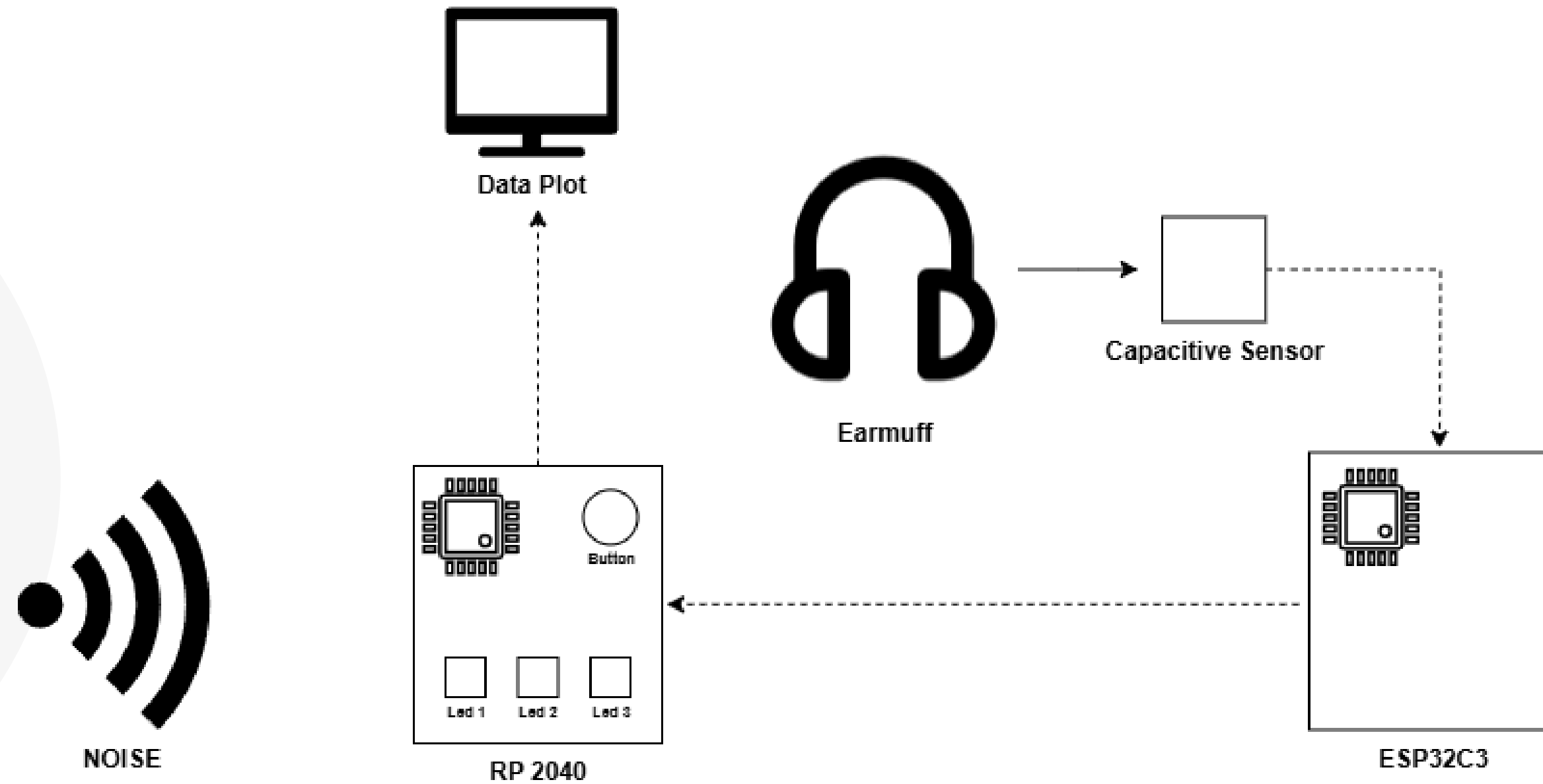
- Sound Level Meters for measurements on fixed machines.
- Dosimeters, developed for dynamic exposure profiles and fixed measurements.

PREVIOUS WORK

We are unaware of measurement equipment that fully meet the proposed requirements, but this may be achievable by integrating it into tools we are considering developing. If feasible and available, both proposals could be useful.

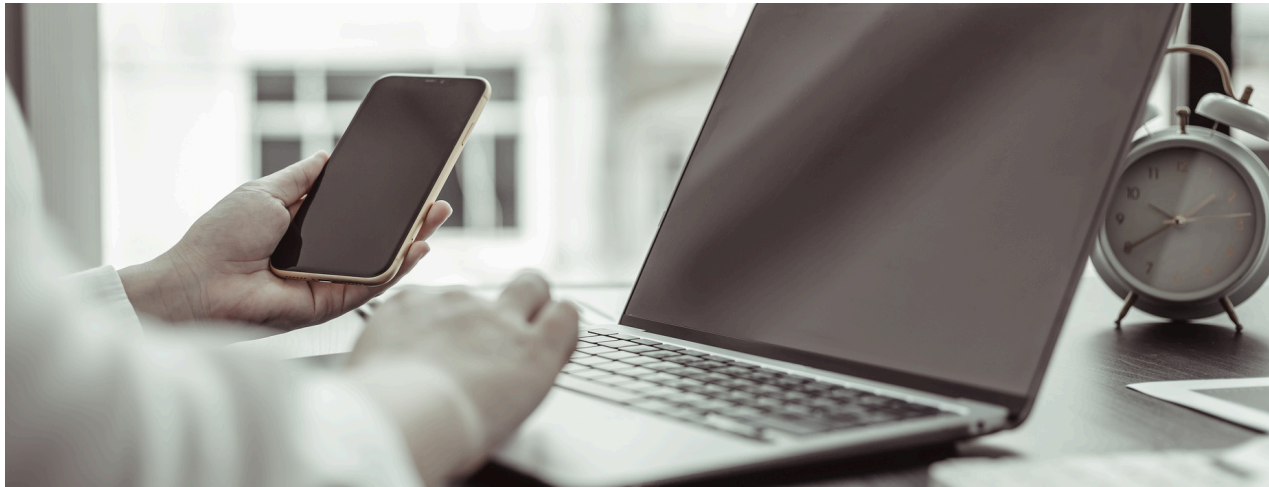


TECHNOLOGICAL SOLUTION



System's operation and structure

SOLUTION REQUIREMENTS



01

Compliance with Legal Standards

Accuracy in Noise Level Detection: Spectral Analysis in 1/1 Octave bands from 63 Hz to 8000 Hz.

02

User Alerts & Awareness

Ensuring that workers receive real-time alerts and respond appropriately to hazardous noise levels.

03

Daily reports

Implement a formal report or a visual scoreboard system.

04

Monitoring Correct Use of PPE

Verifying whether employees are properly using earmuffs.

05

Scalability

Scalability to accommodate future expansions.

TECHNICAL CHALLENGES



01 Real-time noise detection accuracy and range.

02 Verification of PPE usage, using a capacitive sensor.

03 User Compliance: Ensuring workers comply with using this device.

04 Data analysis: The algorithm to group data and treat noises measurements.

05 Ensure proper calibration of the device.

06 Battery Life and Power Consumption: Ensuring the device operates continuously for entire work shifts (8 hours).

07 Ensure the device maintains an acceptable level of comfort.



CHALLENGES FACED BY THE TEAM



- 01** Team dynamics and communication issues.
- 02** Task management has been difficult.
- 03** Companies are not always available to assist us.



MID-PROGRAM STATUS

CURRENT STATUS OF THE PROJECT



01

We are following the UC calendar.

02

We have a partner and adjusted the project according to their input.

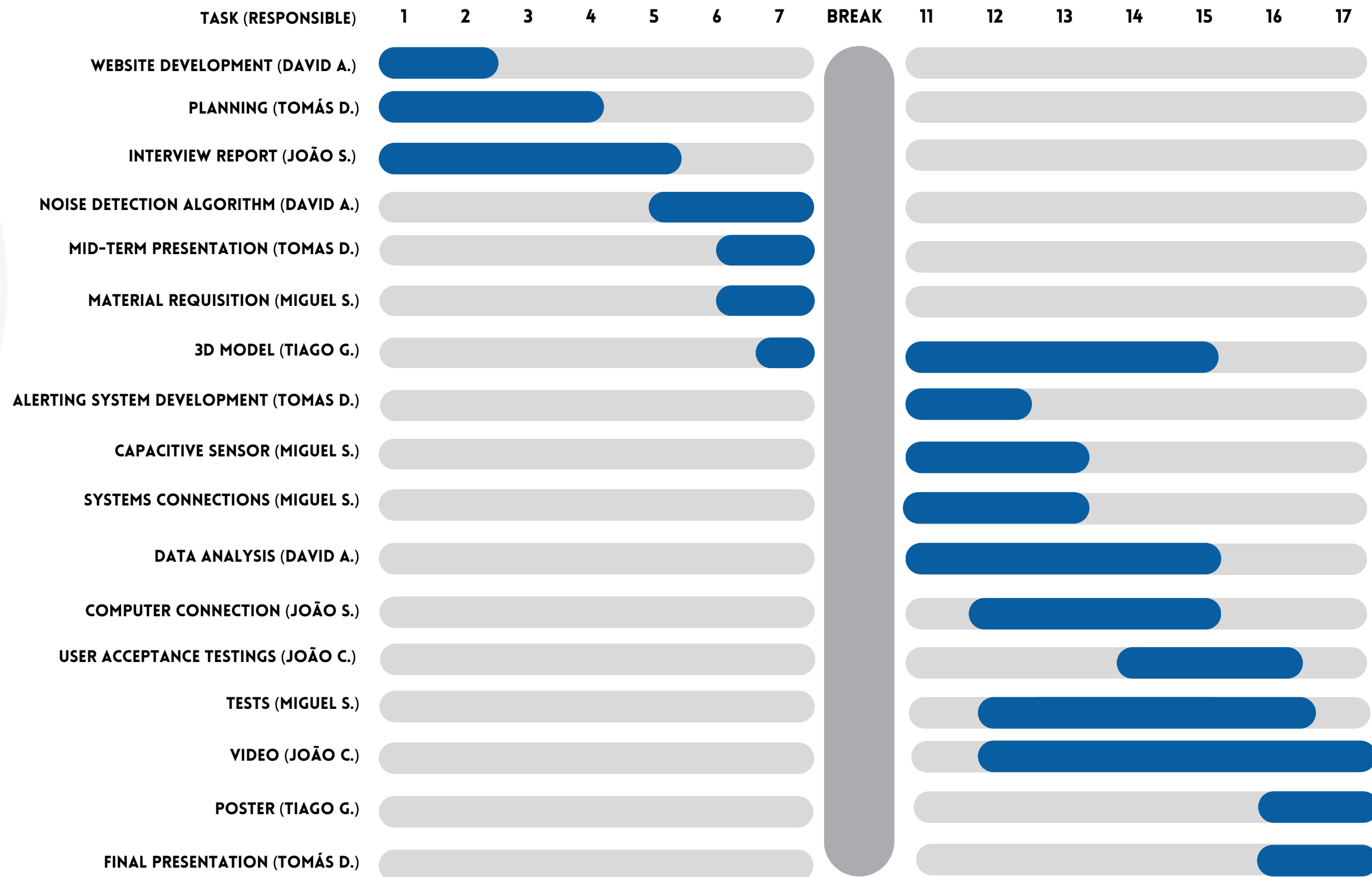
03

We have sketches of implementation and design.



TASK SCHEDULE

SCHEDULE TEAM 8



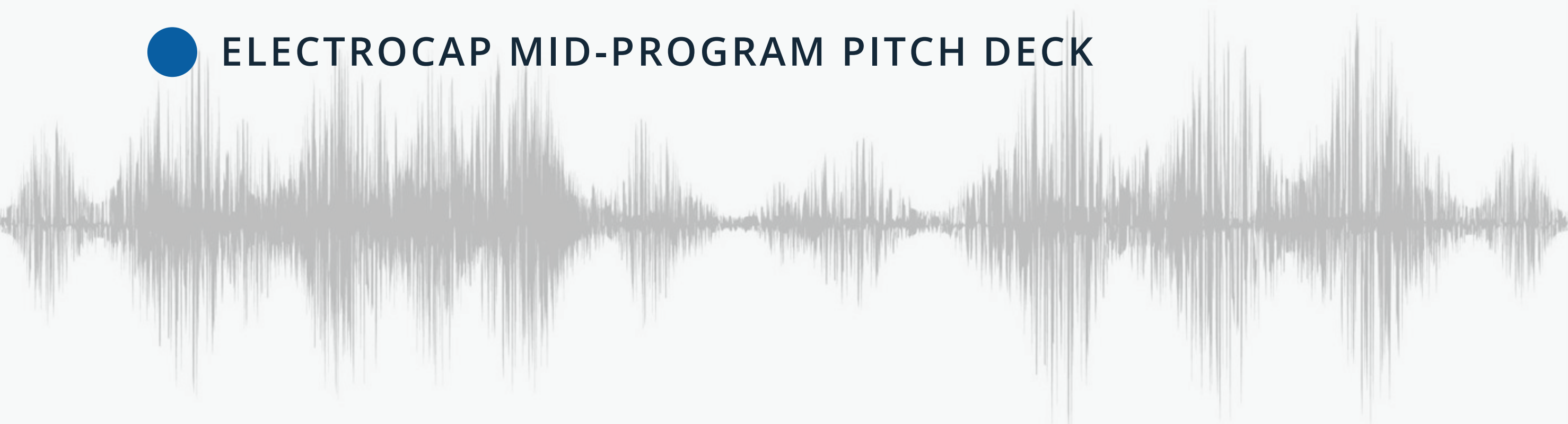


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End

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March 2025