

📍 Aveiro Tech City Living Lab

AI-Powered Platform for Smart City Issue Detection & Resolution

Danilo Silva ◊ Guilherme Santos ◊ João Pinto ◊ Pedro Pinto ◊ Tomás Santos

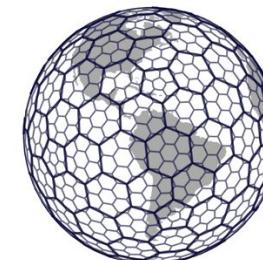
Advisors

Susana Sargento ◊ Pedro Rito ◊ Duarte Raposo

06.05.2025

Index

- How FixAI solves Urban challenges today
- Deployment
- ATCLL Integration



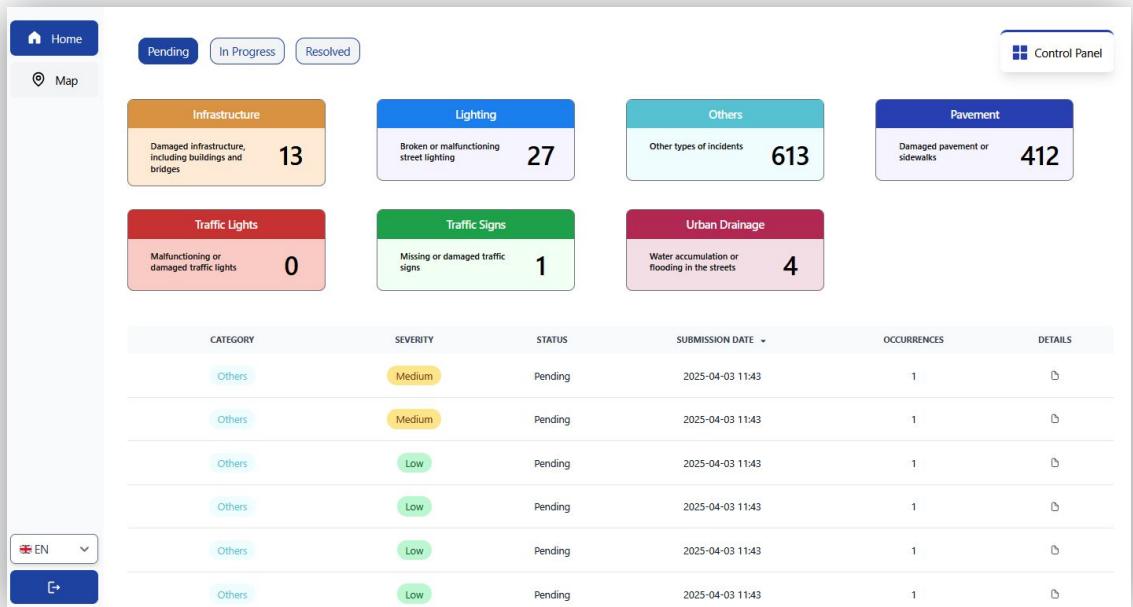
Deadlines

Week	Date	Description	State		Deadlines
1	11/02/2025	M1 - Requirements, lifecycle objectives and calendar for the project			
2	18/02/2025	M2 - Mockup, Start Architecture and beta application			
3	25/02/2025			Setup	Presentation
4	04/03/2025				
5	11/03/2025	M3 - Upgrade of Architecture and full application/website			
6	18/03/2025				
7	25/03/2025				Checkpoint
8	01/04/2025	M4 - AI-powered clustering, descriptions and classifications			
9	08/04/2025				Presentation/ Prototype
10	15/04/2025			Start AI	Presentation/ Prototype
11	22/04/2025	M5 - ATCLL integration for detection and correction			
12	29/04/2025				
13	06/05/2025				Checkpoint
14	13/05/2025	M6 - Stable working application.			
15	20/05/2025				Checkpoint
16	27/05/2025			Docs	Demo
17	03/06/2025	M7 - Prepare final report and documentation			Final Presentation
16	27/05/2025				Poster Presentation

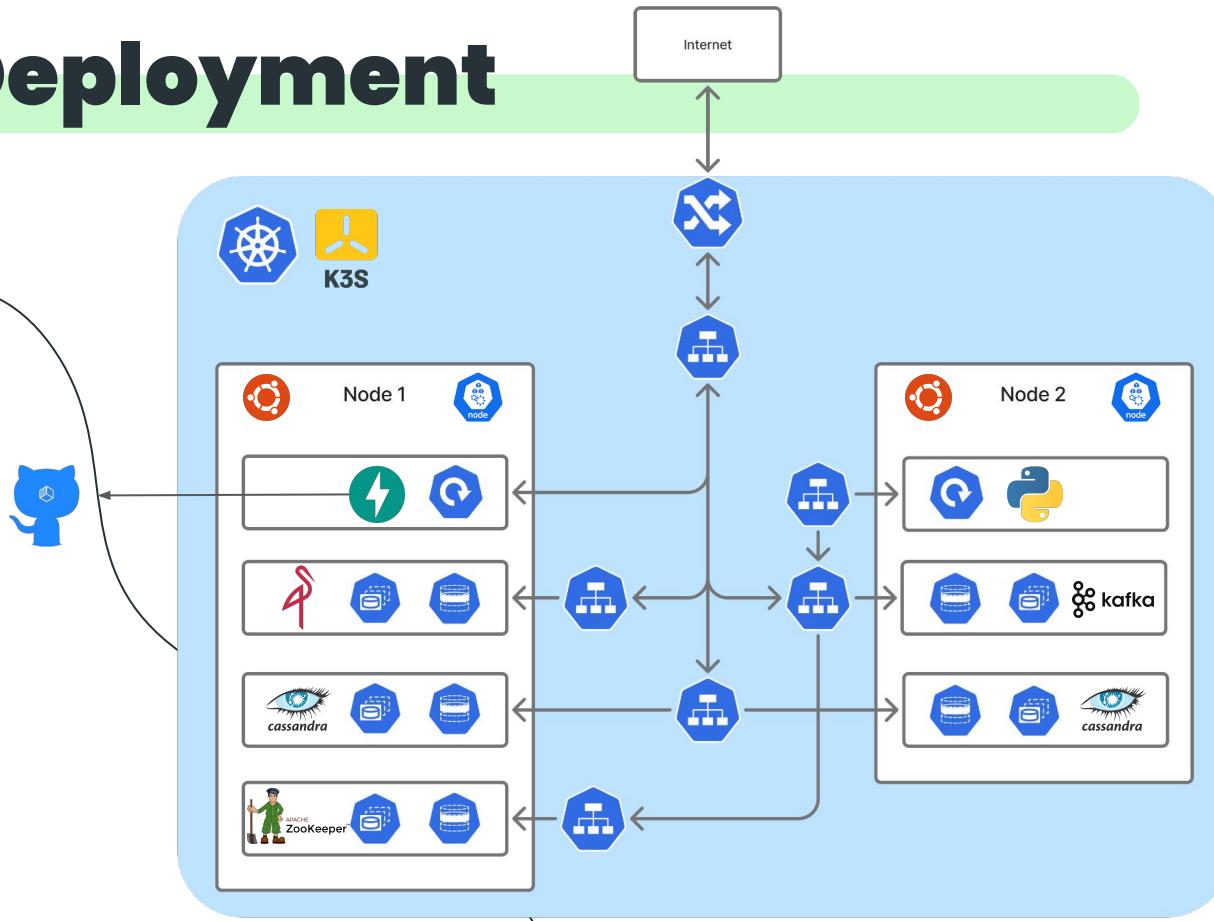
We are here!

Our Solution

Working:
- deployed CI/CD



Deployment



Kubernetes
Cluster



Ingress



Service



Deployment



Stateful Set



Storage Class

Documentation

Geospatial Problem
efficient indexation

Geospatial Problem
Aberto 14:06

⋮

H3-index Solution
efficient indexation

H3-index Solution
Aberto 14:07

⋮

Aveiro Tech City Living Lab
AI-Powered Platform for Smart City Issue Detection & Resolution
Daniela Silva • Guilherme Souto • João Pinto • Pedro Pinto • Susana Souto
Advisors: Susana Souto • Heloísa Ribeiro • Duarte Raposo
Project:

Reuniao-CMA [1]
Aberto 14:06

⋮

Data Access Diagram

Data Access Solution
Aberto 14:13

⋮

Meeting Mar 6

Meeting Mar 6
Aberto 14:03

⋮

MVP Completed

MVP Completed
Aberto 14:09

⋮

Meeting Apr 17

Meeting Apr 17
Aberto 14:04

⋮

Meeting Apr 24

Meeting Apr 24
Aberto 14:04

⋮

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Project:

Reuniao-CMA [2]
Aberto 14:09

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Meeting May 15

Meeting May 15
Aberto 14:16

⋮

⋮

AI-Powered Platform for Smart City Issue Detection & Resolution

João Pinto o Pedro Pinto o Danilo Silva o Tomás Santos o Guilherme Santos

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Susana Souto o Pedro Rito o Duarte Raposo

1. Product concept Vision statement

The objective of this project is to develop a collaborative platform for the AI-powered submission, aggregation, classification, automatic detection and resolution of incidents using the Aveiro Tech City Living Lab (ATCL). The platform will allow both citizens and sensors distributed throughout the city to submit event photos, which will be automatically analyzed using computer vision models to identify the type of incident and its location. In the case of sensors, the resolution of incidents can also be reported, with a certain level of trust.

To achieve this, it is necessary to develop a mobile application that enables citizens to submit photos of incidents. Additionally, a web platform is required for the city control center.

Moreover, the solution will integrate an automatic verification system, utilizing sensor-equipped (and autonomous) vehicles and urban cameras to confirm the resolution of incidents, ensuring that information remains up to date.

The project also aims to address several challenges associated with this type of application:

1. Grouping similar complaints and avoiding duplicate reports to improve information management.
2. Automating classification and descriptions for enhanced visibility.
3. Integrating with ATCL, including PILOT, cameras, and UDANs for advanced data processing.
4. Designing an efficient architecture for easy adaptability with existing platforms.
5. Implementing a platform for event data acquisition and location tracking for accurate reporting.
6. Providing real-time notifications to boost user engagement.
7. Conducting usability tests to ensure user needs are met.
8. Ensuring data and image privacy within the application.
9. Documentation for future maintainability.

PI-docs

Aberto 15/05/2025

Documentation

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ATCLL Integration

- Proof Of Concept



Description

Obstáculo no pavimento da área pedonal.

2025-05-15 09:41

1



ATCLL Integration



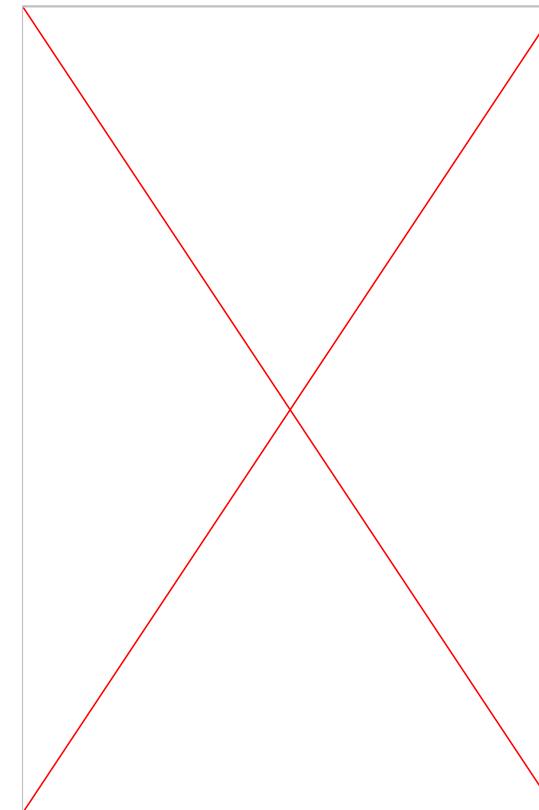
- Proof Of Concept



Description

Obstáculo no pavimento da área pedestre.

2025-05-15 09:41



ATCLL Integration

- Proof Of Concept



Description

Obstáculo no pavimento da área pedonal.

2025-05-15 09:41

1



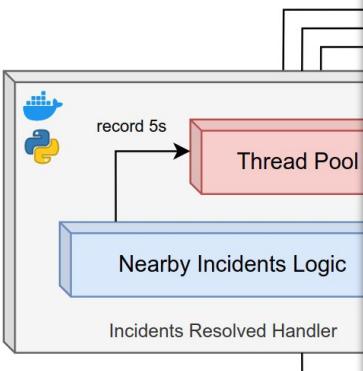
Problem Already Solved Detected

Detected Time: 15 May 2025

Edge Data ID: a434dfa

[Confirm Resolution](#)

PIXKIT - In



Future work:

- Record a "real" demo



ral_sight



Questions?

📍 Aveiro Tech City Living Lab

AI-Powered Platform for Smart City Issue Detection & Resolution



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