



📍 Aveiro Tech City Living Lab

AI-Powered Platform for Smart City Issue Detection & Resolution

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

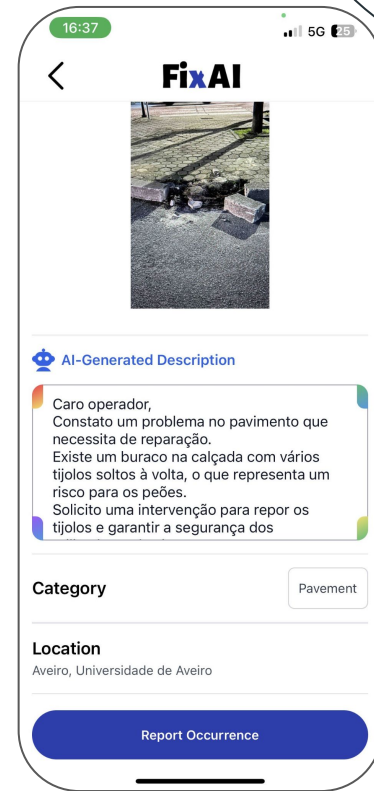
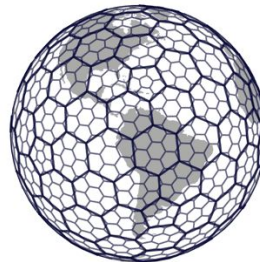
Advisors

Susana Sargento ◦ Pedro Rito ◦ Duarte Raposo

06.05.2025

Index

- How FixAI solves Urban challenges today
- LLM Jobs
- Scalable Infrastructure
- ATCLL Integration



Deadlines

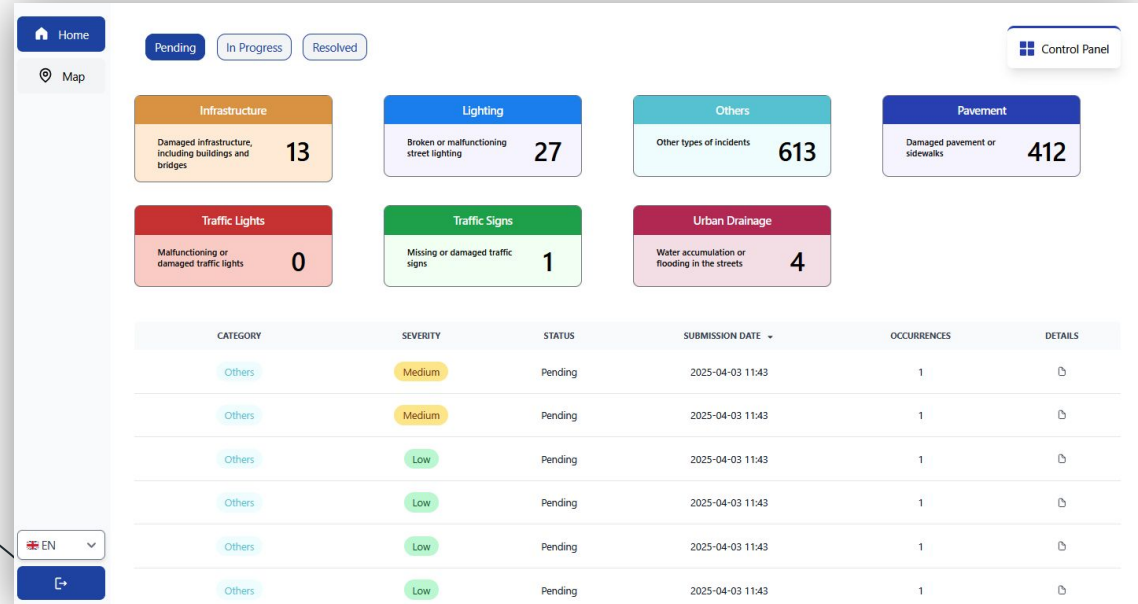
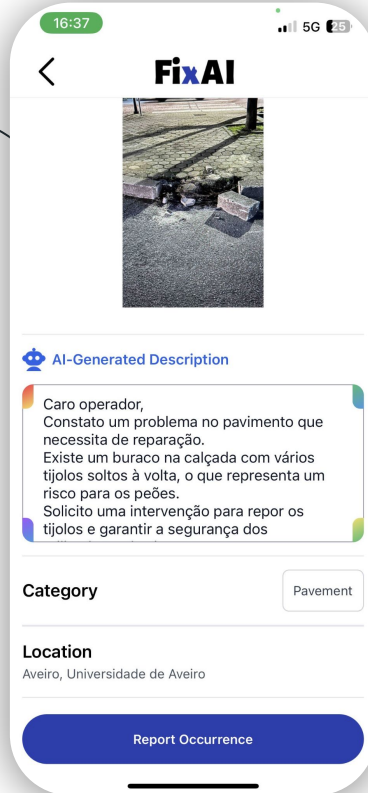
Week	Date	Description	State	Deadlines
1	11/02/2025	M1 - Requirements, lifecycle objectives and calendar for the project		
2	18/02/2025	M2 - Mockup, Start Architecture and beta application		
3	25/02/2025		Setup	Presentation
4	04/03/2025			
5	11/03/2025	M3 - Upgrade of Architecture and full application/website		
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

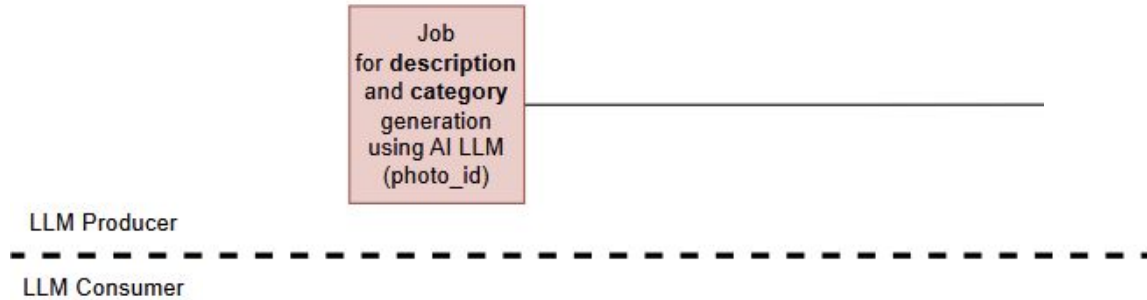
Working:
- deployed CI/CD



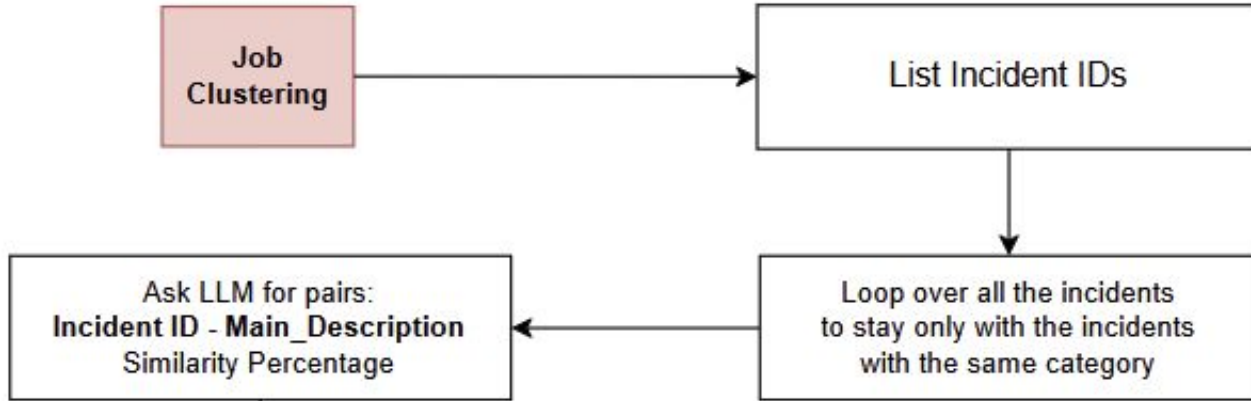
Jobs

- **Job 1 - Generate description, category and severity**
- **Job 2 - Job Clustering**
- **Job 3 - Merge Descriptions into an updated main description**

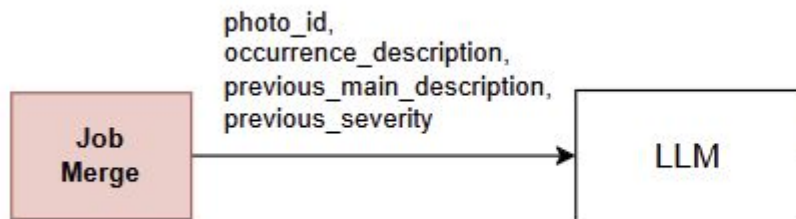
Job Occurrence Description



Job Clustering

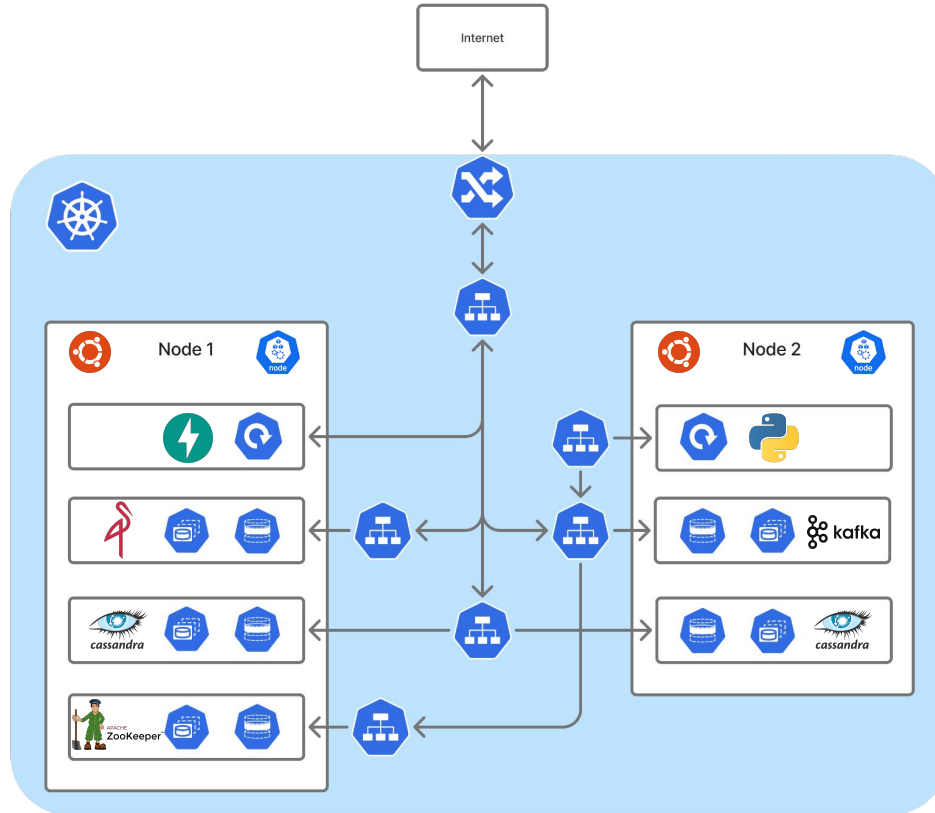


Job Merge



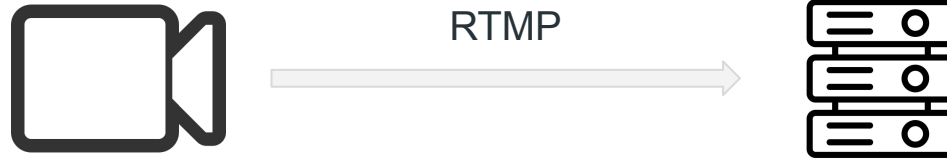
Scalable Infrastructure

Future work:
- deploy with 2 VMs



- Kubernetes Cluster
- Ingress
- Service
- Deployment
- Stateful Set
- Storage Class

ATCLL Integration

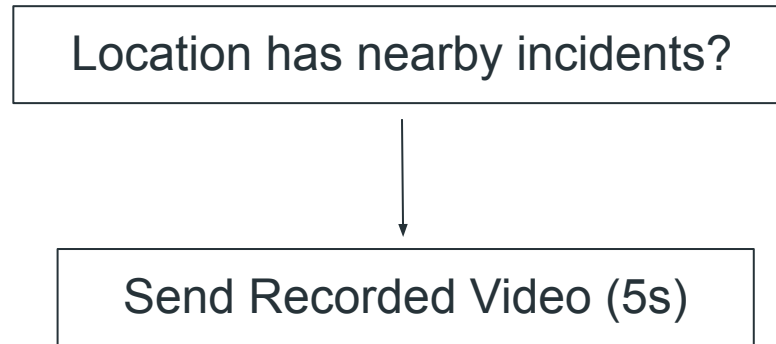


- Video Streaming Possible Solutions

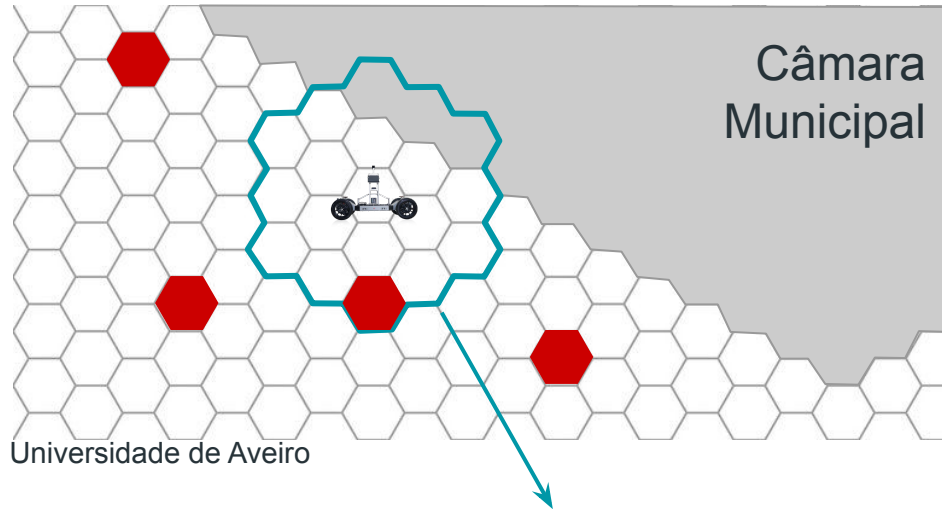


ATCLL Integration

- Video Streaming ❌
- Sent recorded video through REST API ✔️



H3 Index Solution

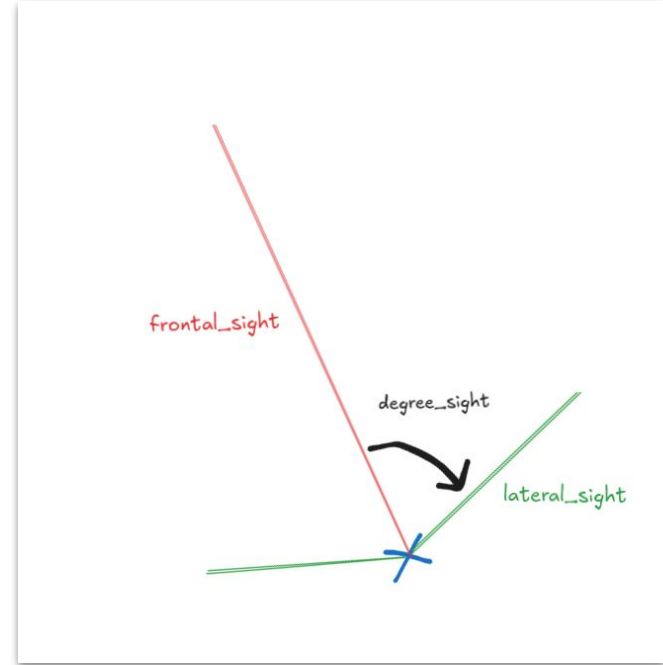
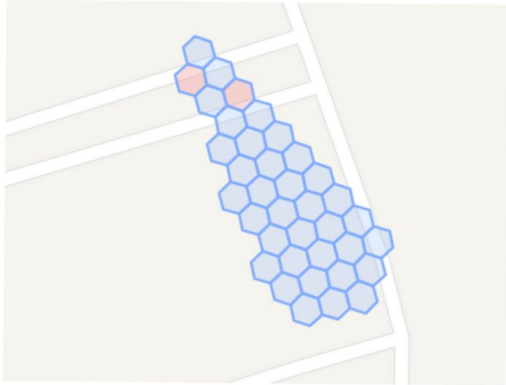


key: h-index
value: (organization, incident_id)

Not realistic!

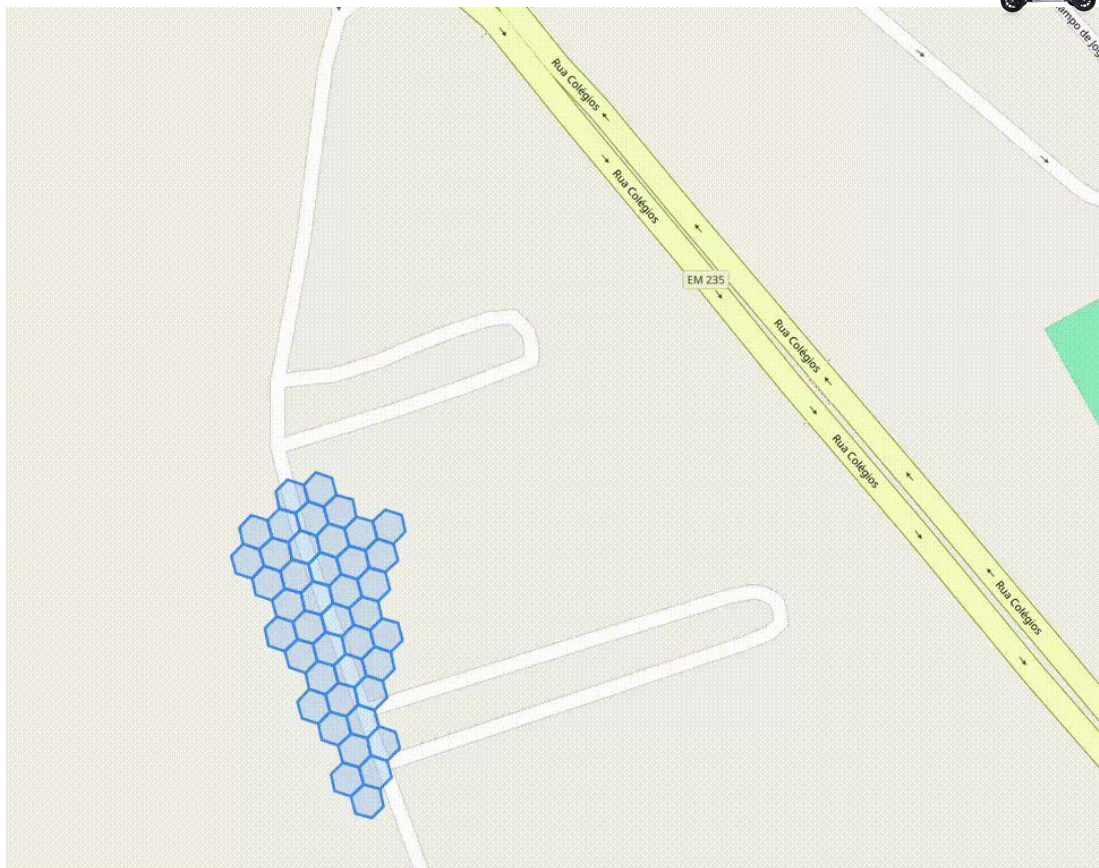
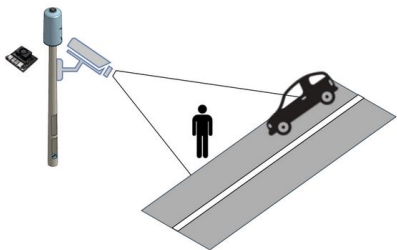
Requirements

- Latitude
- Longitude
- Heading degree
- Sight

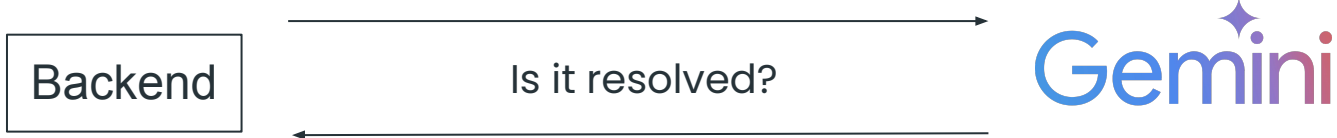


Changes with velocity!

Edge Data



Async LLM Job



Problem Already Solved Detected

Detected Time: May 5 2025

Edge Data ID: 92837

Confirm Resolution

Future work:
- frontend integration

Backend > tests > videos > resolved.mp4



Backend > tests > images > not_resolved.jpg



Backend > tests > images > not_resolved2.jpg

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
feature/nearby-incidents* _/Backend/tests > python3 llm_client.py  
{'is_resolved': 'true'}
```

```
Input tokens: 2743
```

```
Output tokens: 8
```

```
Total tokens: 2751
```

```
feature/nearby-incidents* _/Backend/tests > python3 llm_client.py  
{'is_resolved': 'false'}
```

```
Input tokens: 2743
```

```
Output tokens: 8
```

```
Total tokens: 2751
```

```
feature/nearby-incidents* _/Backend/tests >
```




Questions?

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