# Datacrowd

Second Milestone Presentation

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# Features Overview

## Inform Public for better decision making

- Real time data and Predictions [heatmaps and graphs]
- Suggestions and Alerts

*Commuting citizens using Public Transport*

## Monitoring Tools for Authorities & Businesses

- Crowd Overview
- Insights for better resource allocation
- Alerting and notifying

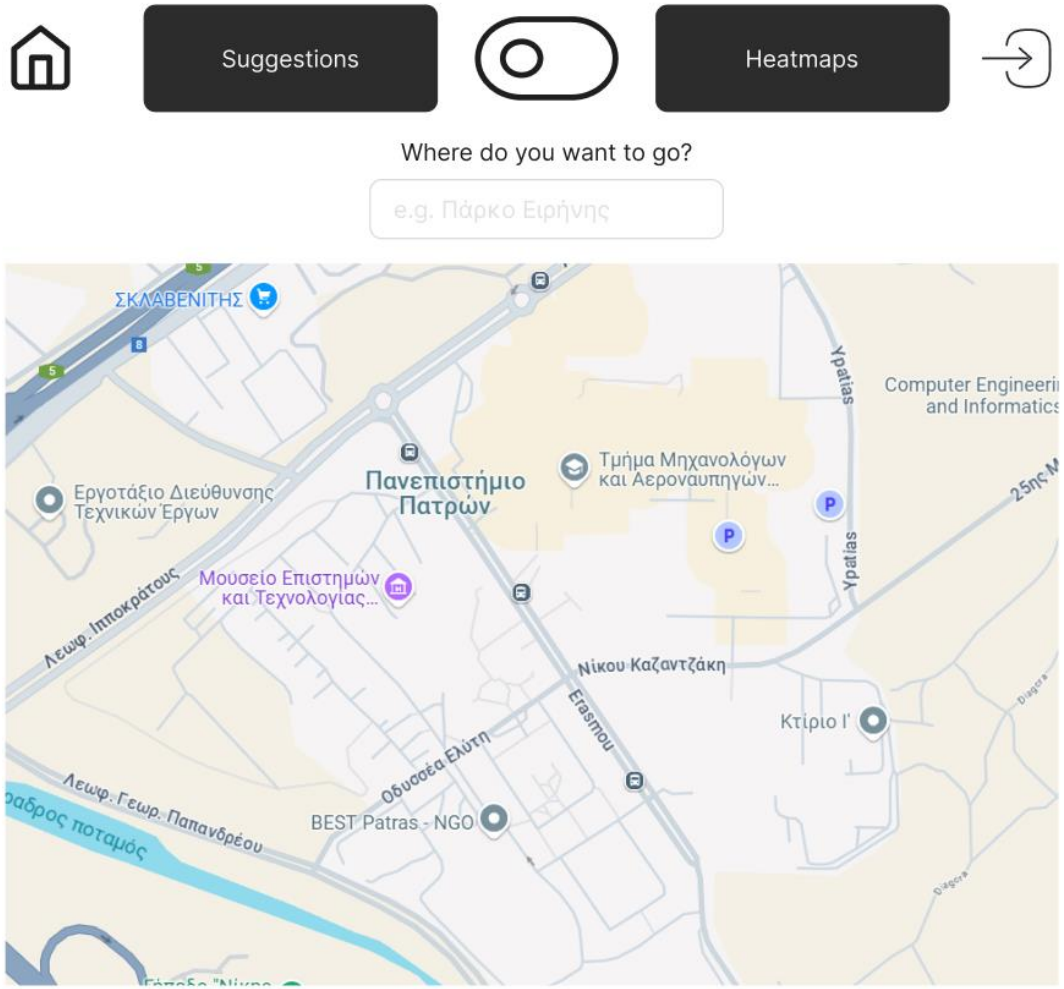
*Staff scheduling, Efficient police force management, Bus schedule changes*

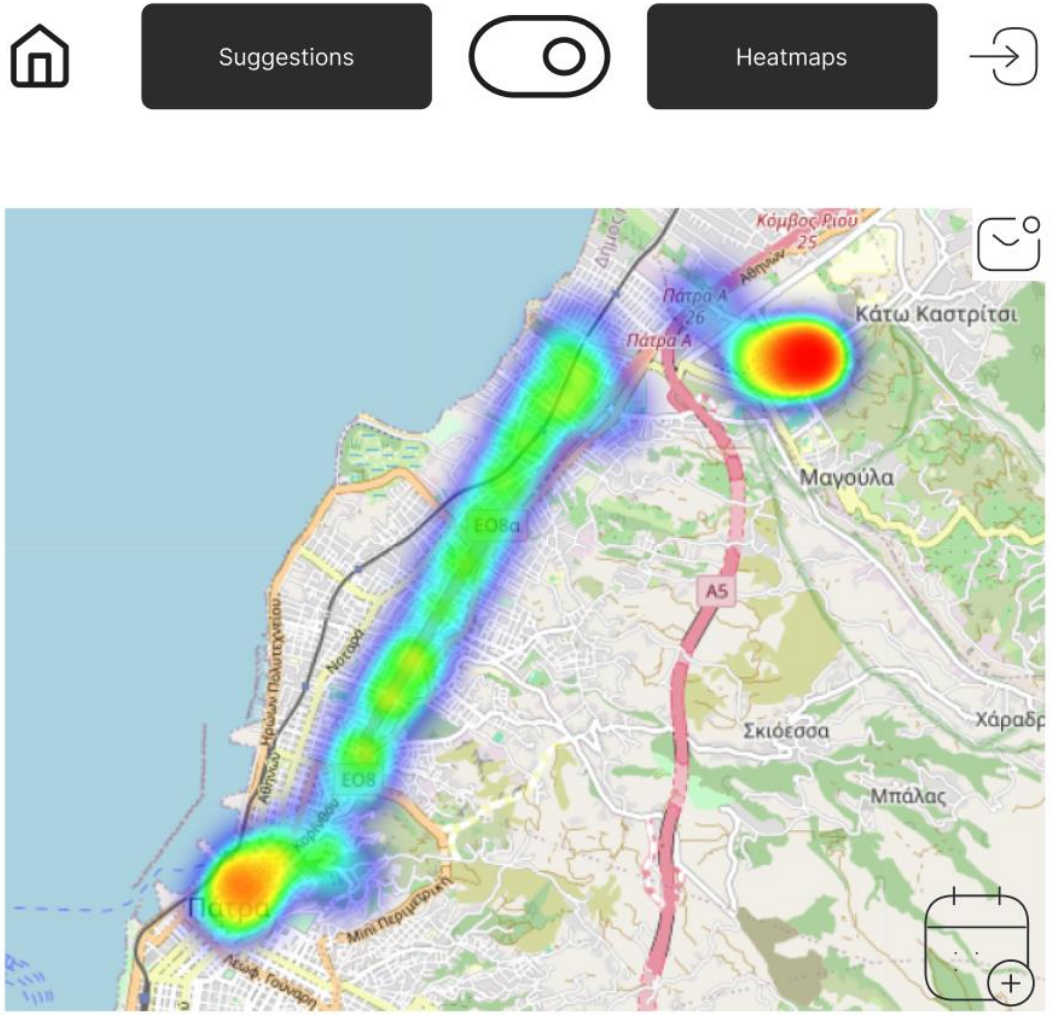
## Tools for Long Term Planning

- Insights about urban planning in popular areas
- Effectiveness evaluation for measures taken

*More sidewalks, New business locations*

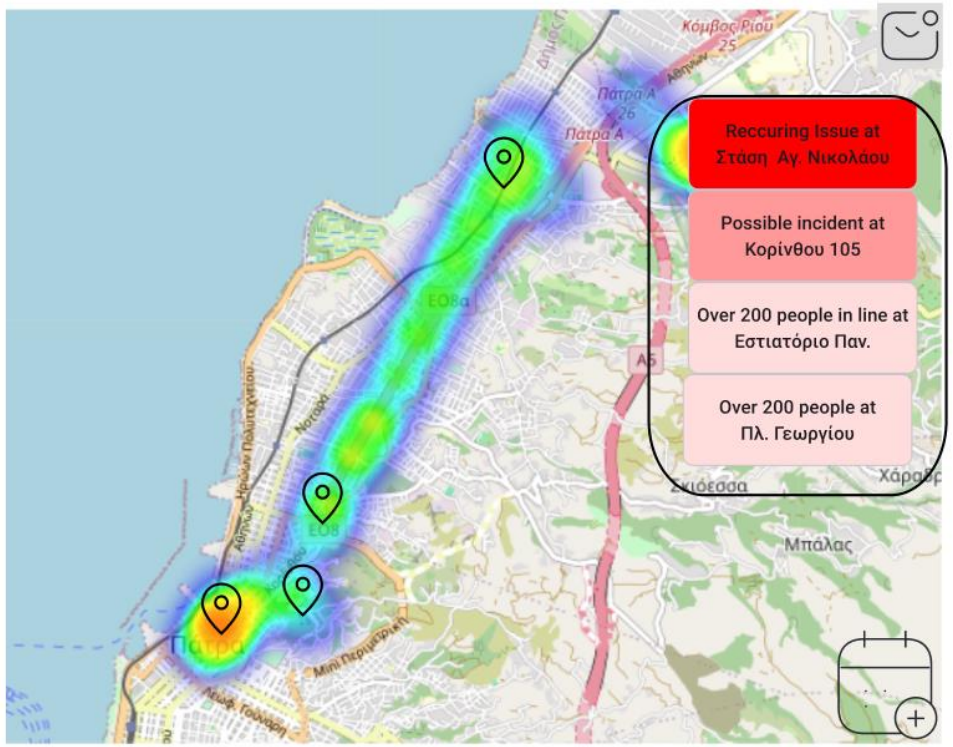
# Citizens


Suggestions
Heatmaps
Where do you want to go?
e.g. Πάρκο Ειρήνης
ΣΚΛΑΒΕΝΙΤΗΣ
Πανεπιστήμιο Πατρών
Τμήμα Μηχανολόγων και Αεροναυπηγών...
Εργοτάξιο Διεύθυνσης Τεχνικών Έργων
Μουσείο Επιστημών και Τεχνολογίας...
Computer Engineeri and Informatics
Ypatias
Λεωφ. Ιπποκράτους
Νίκου Καζαντζάκη
Κτίριο Γ'
Οδυσσέα Ελύτη
Λεωφ. Γεωρ. Παπανδρέου
BEST Patras - NGO


Suggestions
Heatmaps
Κάτω Καστρίτσι
Μαγούλα
Σκιόεσσα
Μπάλας
Πάτρα
A5
EO8a
EO8

# Businesses and Authorities

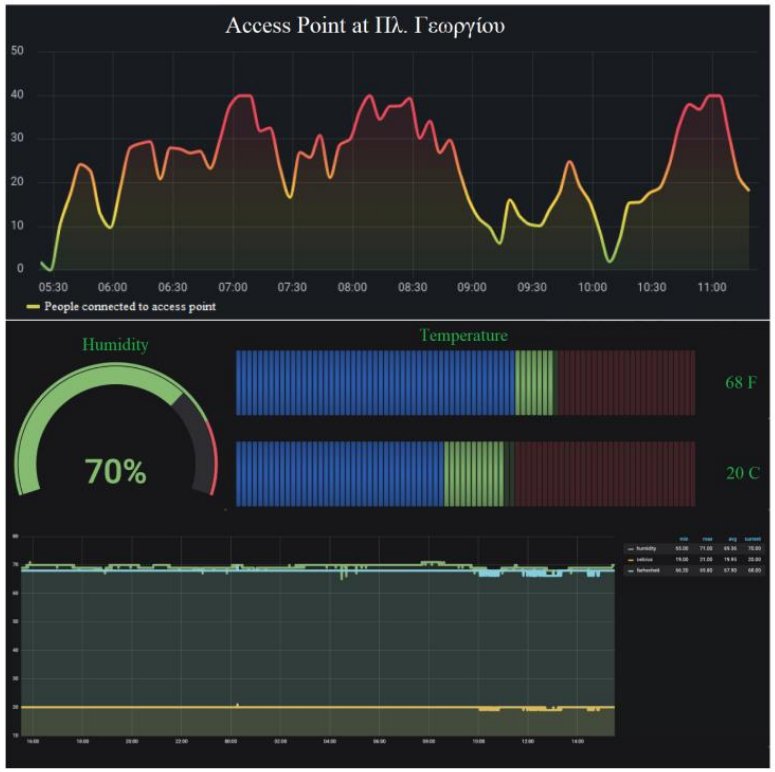
## Monitoring and Notifications

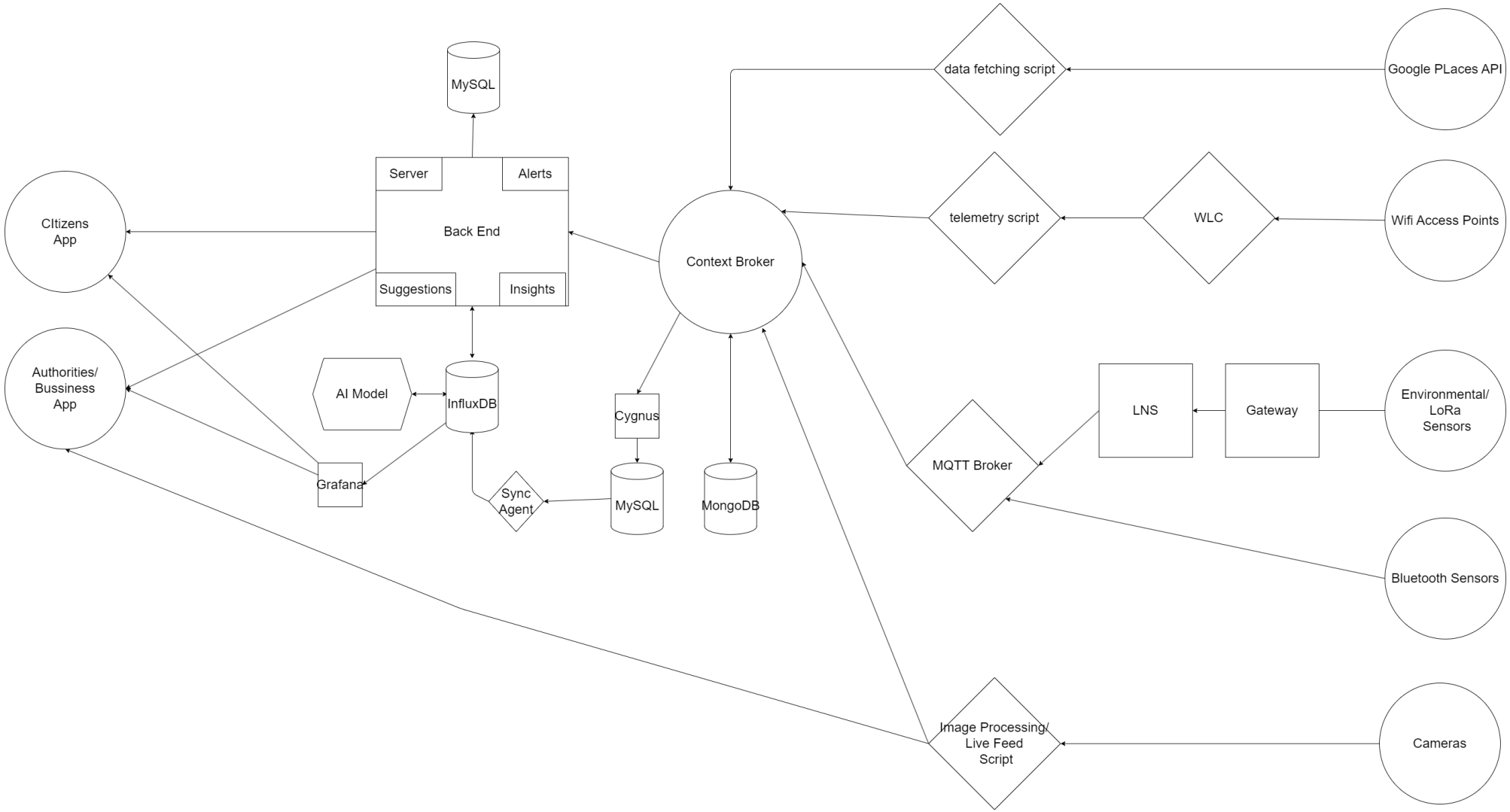

## Metrics and sensor data


Select area for analytics

e.g. Πλ. Γεωργίου




Camera feed




# App Architecture

# Data processing

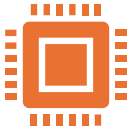
The sensor data needs to be organized and processed.

The camera feeds will be used to extract the number of people in view.

The access point traffic data will be used to estimate the number of people connected to the Local Area Network.

The climate data ($CO_2$, Temperature, Humidity) will be used to determine the rough size of the crowd in a closed space.

Live and historic data from the Google Places API will be used for live and predictive crowd estimations.



AI models will be used to predict the live concentration of people in an area given all the data sources available, as well as the future congestion given live and historic data.

# Technologies


Google Places API

Sensor Protocols:
LoRa, Bluetooth, SNMP, IP for camera

University Lab Infrastructure:

Context Broker

Back End:

Python Flask

Front End:

Html, CSS

Databases:

MongoDB, Sqlite3, InfluxDB

Analytics, Insights:

Grafana, Facebook Prophet

AI Models:

Pytorch/LSTM

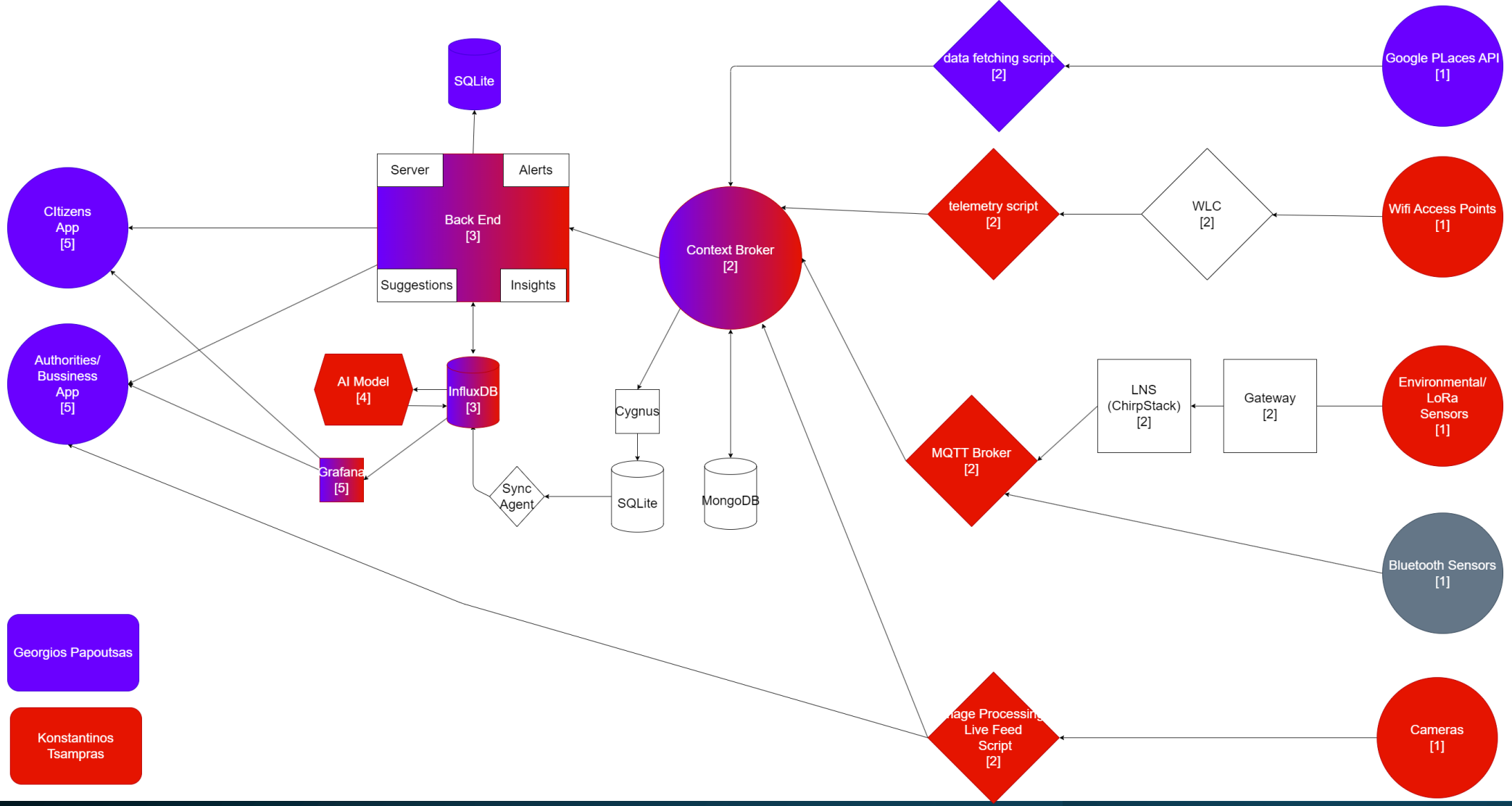
Smart Data Models:

For sensor data and crowd measurements*

Design:

Figma

https://github.com/smart-data-models/dataModel.Environment/tree/master/AirQualityObserved *
https://github.com/smart-data-models/dataModel.Transportation/tree/master/AnonymousCommuterId
https://github.com/smart-data-models/dataModel.Transportation/tree/master/CrowdFlowObserved
https://github.com/smart-data-models/dataModel.OCF/tree/master/Measurement




# Workload sharing

# Time schedule

- Data gathering from existing sources and placement of new Sensors (mid-December) [1]
- Complete implementation of the Cloud infrastructure (end of December) [2]
- Implementation of the Backend of the app (early January) [3]
- Design and training of the AI prediction models (mid-January) [4]
- Detailed design and implementation of the Frontend of the two websites one for Citizens and one for Municipalities/Businesses (end of January) [5]
- Feedback and fine tuning of all the parts of the App (early February)
- Final presentation preparation (early February)

Thank you for your time!