Interreg CENTRAL EUROPE

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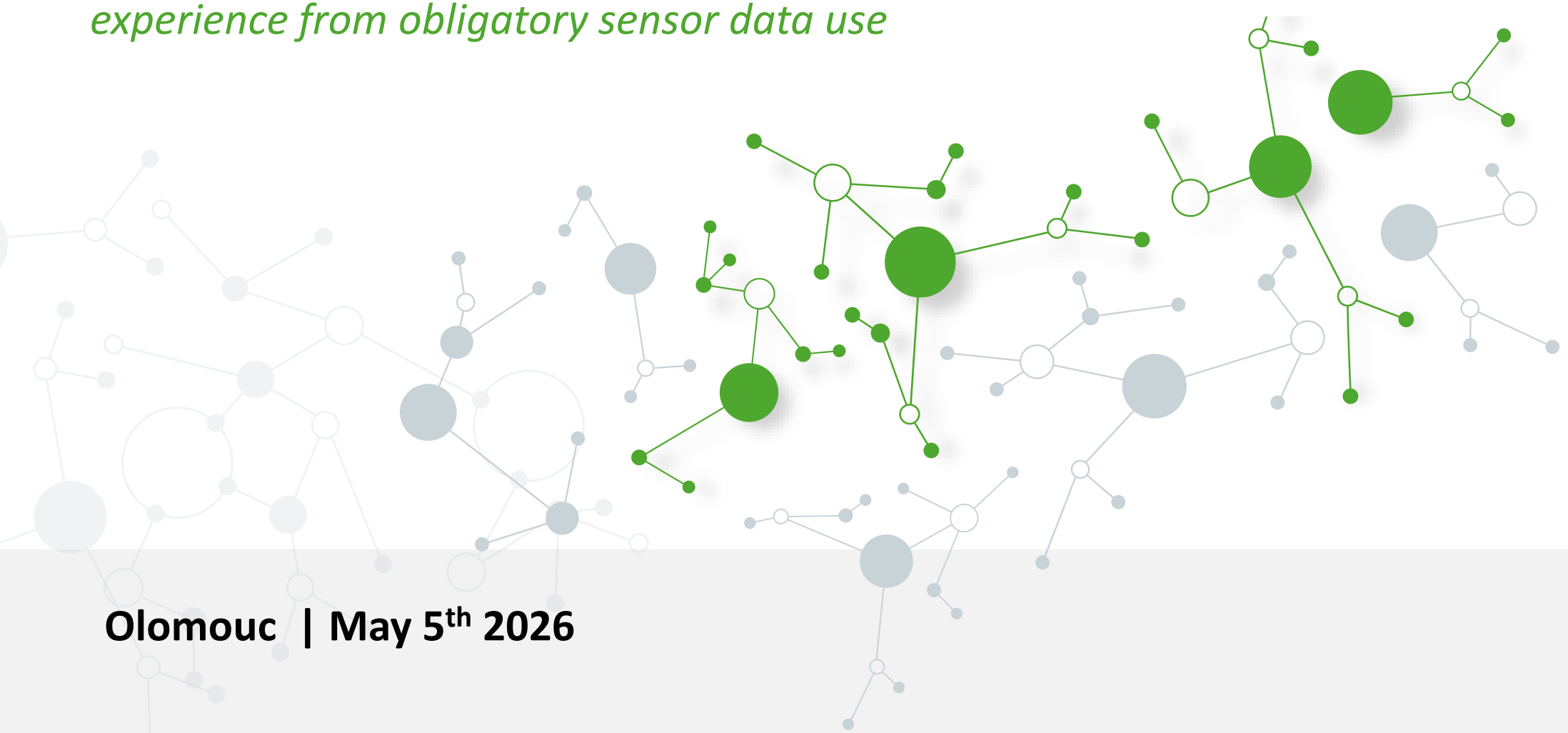
EnCLOD

Hackathon

Results of the 3rd Olomouc hackathon with EnCLOD awards and experience from obligatory sensor data use



Olomouc | May 5th 2026

Interreg CENTRAL EUROPE

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EnCLOD

Hackathon 2025
When data speaks

EnCLOD Sensor Data

14th–16th November

Olomoucký kraj

OLOMOUC

KATEDRA GEOINFORMATIKY
Univerzita Palackého v Olomouci

Hackathon in Olomouc

- **A three-day hackathon supported** by Palacký University, Olomouc region, and City of Olomouc and the EnCLOD project
- Competition for **valuable prizes worth over 4 000 €**
- Projects focused on **original ideas leading to improved quality of life**
- Practical use of open data
- Creative work, education, networking, and presentations
- Theme: **transport and climate change**

Organisers

Interreg CENTRAL EUROPE

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EnCLOD

Olomoucký kraj

OLOMOUC

KATEDRA GEOINFORMATIKY
Univerzita Palackého v Olomouci

Univerzita Palackého v Olomouci

DIGI EDU HACK

Olomoucký kraj

OLOMOUC

KATEDRA GEOINFORMATIKY
Univerzita Palackého v Olomouci

INOVAČNÍ CENTRUM OLOMOUCKÉHO KRAJE

Vědeckotechnický park

CZECHINVEST

czech startups .org

ARCDATA PRAHA

esri Official Distributor

city:one

CITIQ

TSBOHEMIA.CZ

ICZ

ARICOMA

Maker Faire Olomouc

ENGAGE green

Element Coworking

URBAN PLANNER

DIGITÁLNÍ A INFORMAČNÍ AGENTURA

TESCOSW

CAGI


HACKATHON
KDYŽ DATA PROMLUVÍ
14.-16. listopadu 2025
Envelopa Hub, Olomouc
Interreg
CENTRAL EUROPE
Co-funded by the European Union
EnCLOD
Olomoucký kraj
OLOMOUC
CZECHINVEST
ARICOMA
CAGI
ARCDATA PRAHA
esri
city:one
CITIQ
TESCOSW
ICZ
TSROHEMA.CZ
Maker Faire Olomouc
ENGAGE
Element Coworking
URBAN PLANNER
beecode
unizone
Studium na dosah ruky
40 000+
Studuj Přírodu
Nasměrujeme vás k příležitostem
Palacký University Olomouc
www.upol.cz
Rozjeď u nás svoji IT kariéru

Hackathon in Olomouc

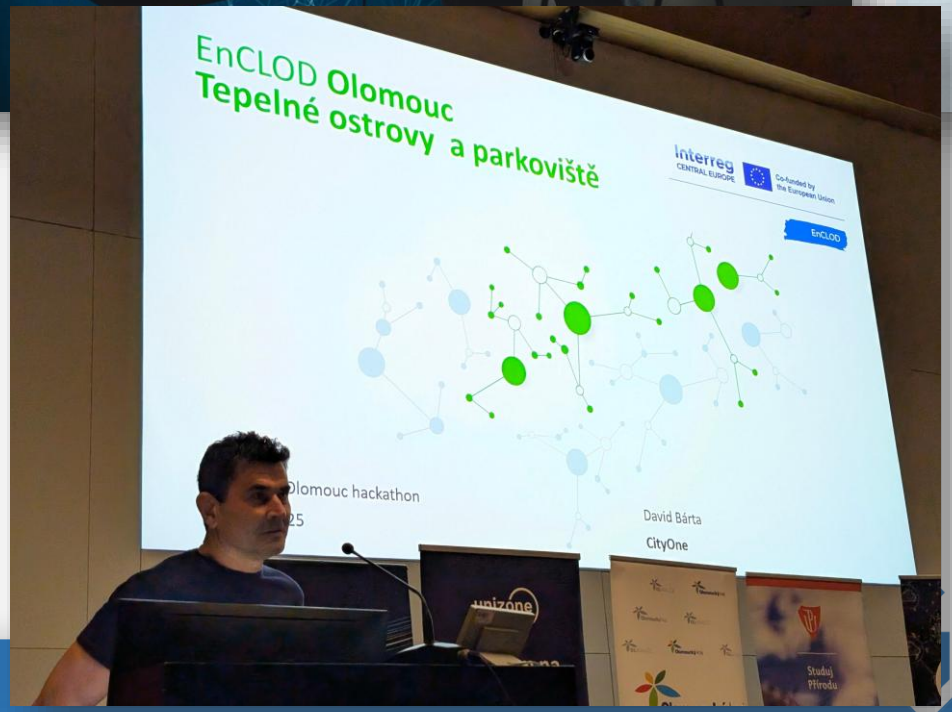
- **10 Teams**
- Up to 30 participants
- University/high school students, professionals
- 13 mentors
- 4 speakers
- 5 judges
- 5 categories of awards

Presentations

- **Open data**
- **Sensor networks**
- **Data portal – Olomouc region**
- **Heat Islands and Sensor network in Olomouc**
- **Data portal – EnCLOD**

- *Presentation skills*
- *Effective project validation*

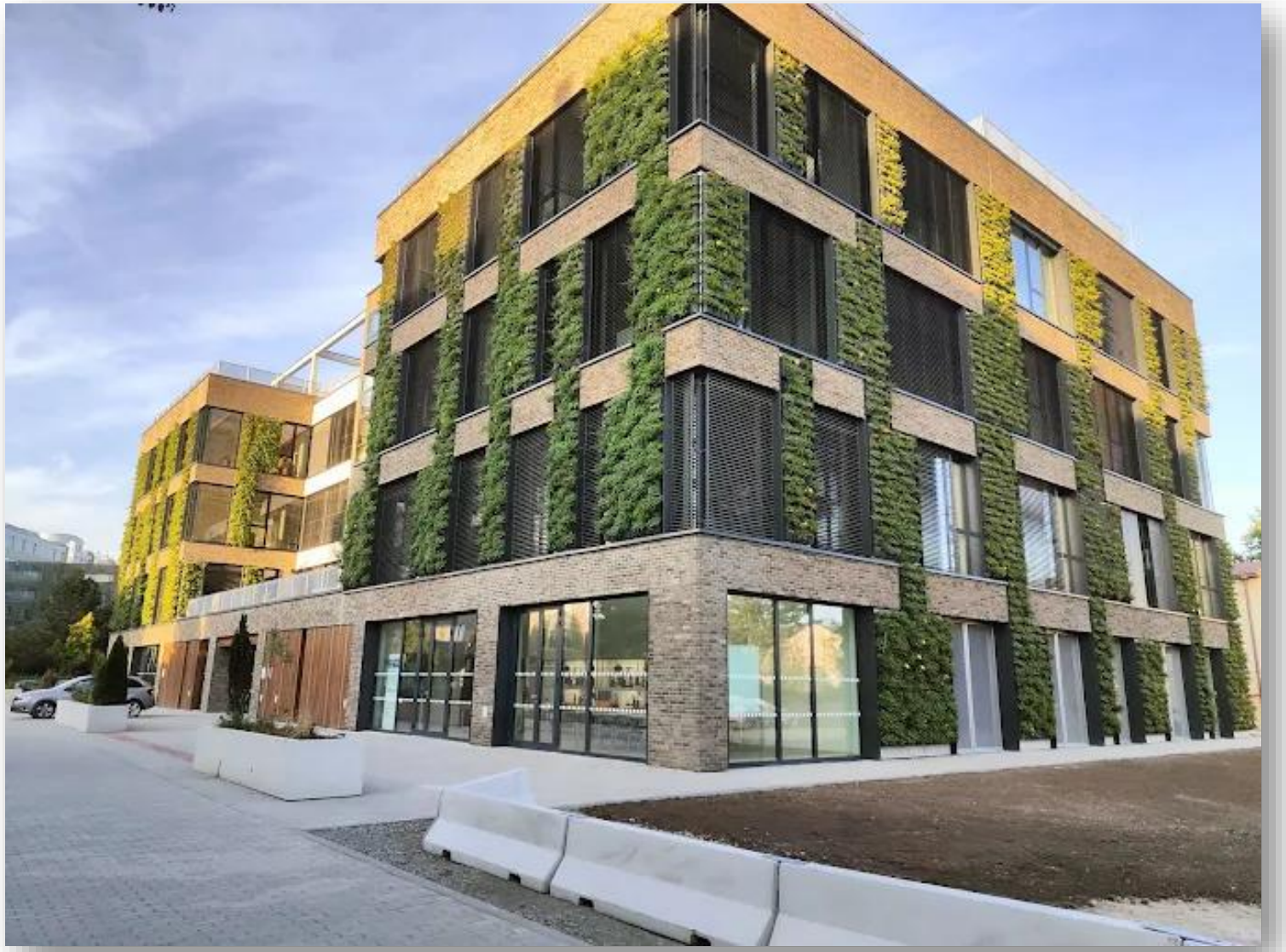

Envelopa Hub
Design Thinking & HCD
EMPATHIZE
DEFINE
IDEATE
PROTOTYPE
TEST
IMPLEMENT
HEAR
CREATE
DELIVER

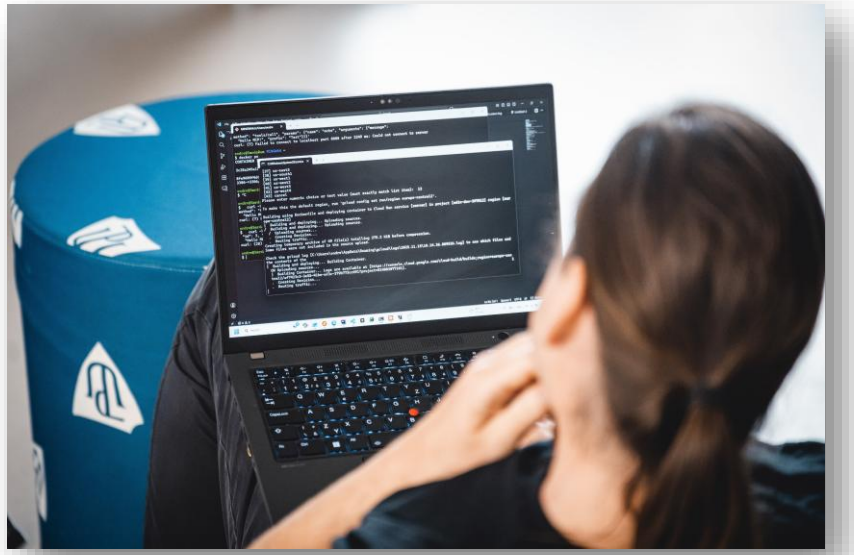

EnCLOD Olomouc
Tepelné ostrovy a parkoviště
Interreg
CENTRAL EUROPE
Co-funded by the European Union
EnCLOD
David Bárta
CityOne
unizone


Datový portál CITIQ - Dostupné datové sady
https://iot.citiq.cloud/portal/
14.11.2025
CITIQ s.r.o.
Ing. Vojtěch Glesl
unizone
Studium na
Olomoucký kraj
EnCLOD

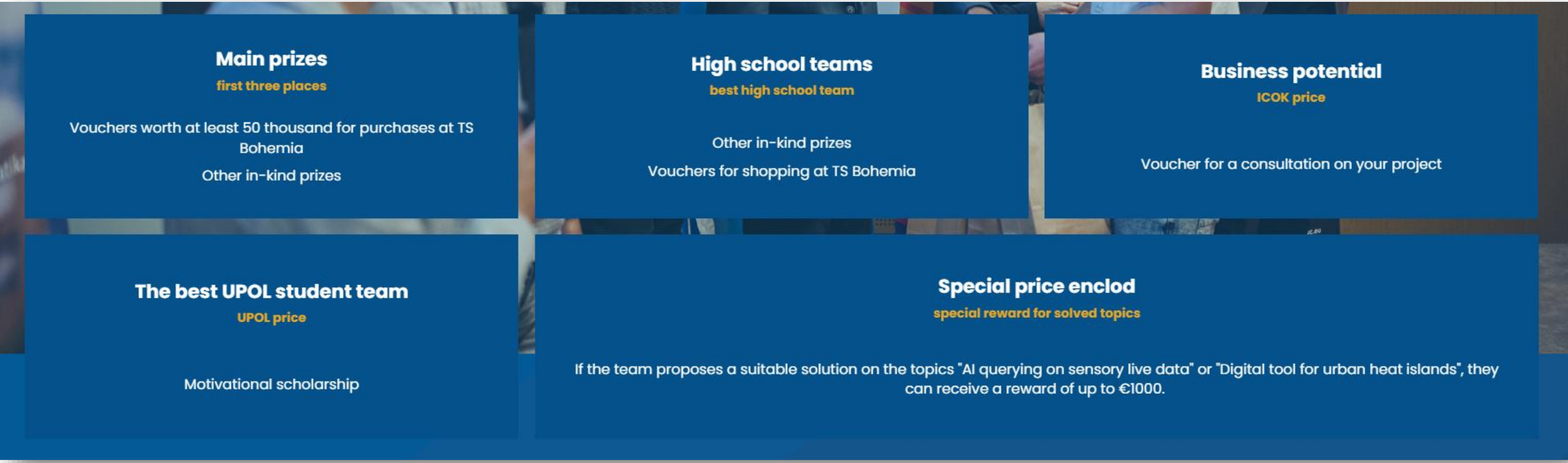
Schedule

1. Welcome and Introduction
2. Start of the work
3. Presentations and Mentoring
4. Presentations of Teams
5. Scoring
6. announcement of results
7. Celebration





Prizes



Main prizes

first three places

Vouchers worth at least 50 thousand for purchases at TS Bohemia

Other in-kind prizes

High school teams

best high school team

Other in-kind prizes

Vouchers for shopping at TS Bohemia

Business potential

ICOK price

Voucher for a consultation on your project

The best UPOL student team

UPOL price

Motivational scholarship

Special price enclod

special reward for solved topics

If the team proposes a suitable solution on the topics "AI querying on sensory live data" or "Digital tool for urban heat islands", they can receive a reward of up to €1000.

Winners

First place

Tým Paráche

Asphalt sence – road stress

Second place

Tým CMM

Road Ammortization

Third place

Tým YAAC

Tvargl – AI sum of weather

ICOK price

Tým YAAC

Tvargl – AI sum of weather

PŘF UP price

Tým CMM

Road Ammortization

EnCLOD price

Tým Stack Tracers / YAAC

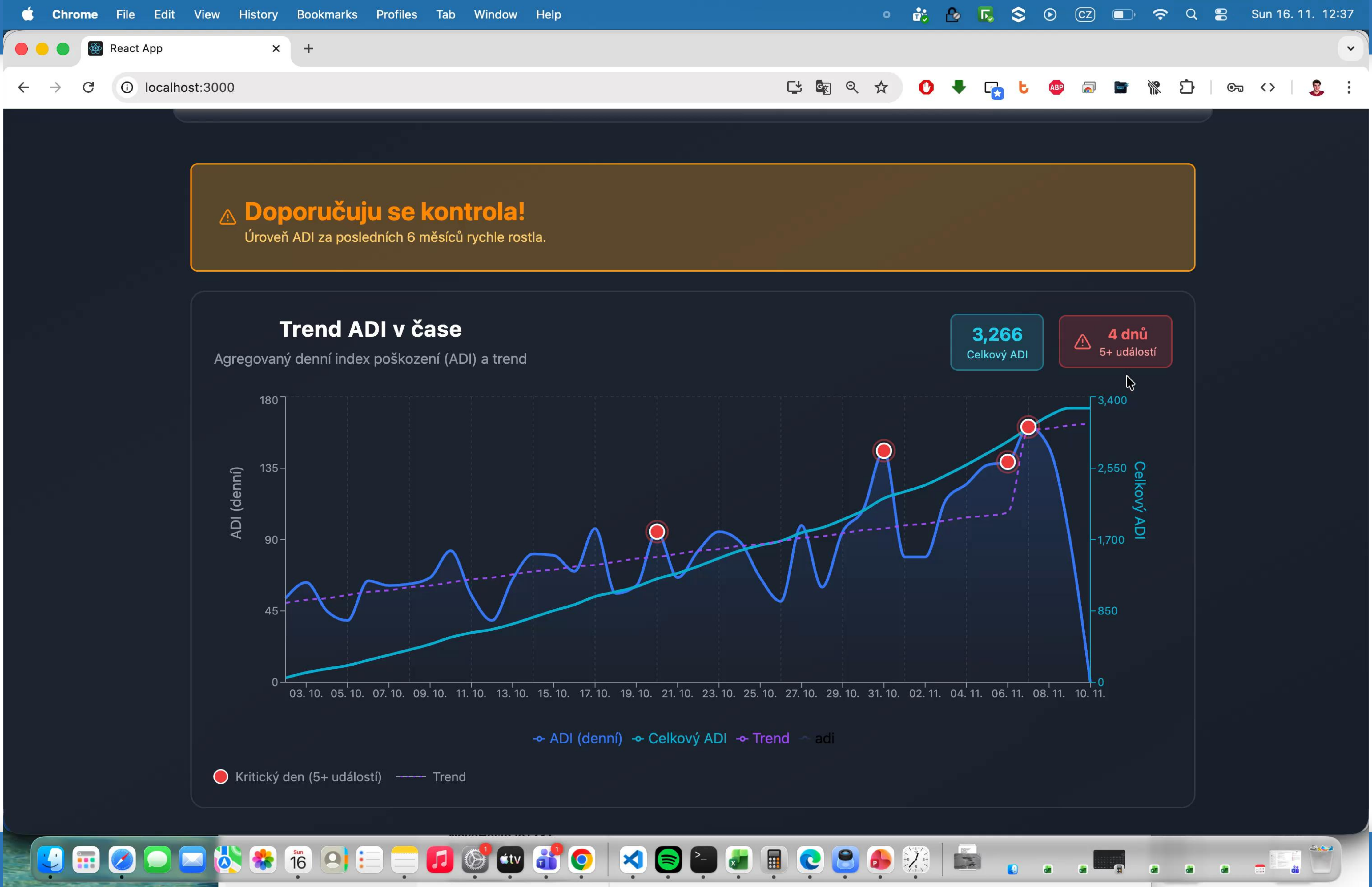
AI qeary with sensoric data

Selected presentations:

Asphalt Sence Paráche	**Amortizace vozovek** CMM	**Rideradar** Ajty	**Doprava** CPU	**Tvargl** YAAC
PREZENTACE →	PREZENTACE →	PREZENTACE →	PREZENTACE →	PREZENTACE →
FNOL – smart parking Explozníval sprcha	**Parksence** NTL-CUP	**Gamifikace vzdělávání** Maxik	**ParaSOL** SoloBer	**Oli** Stacktracers
PREZENTACE →	PREZENTACE →	PREZENTACE →	PREZENTACE →	PREZENTACE →

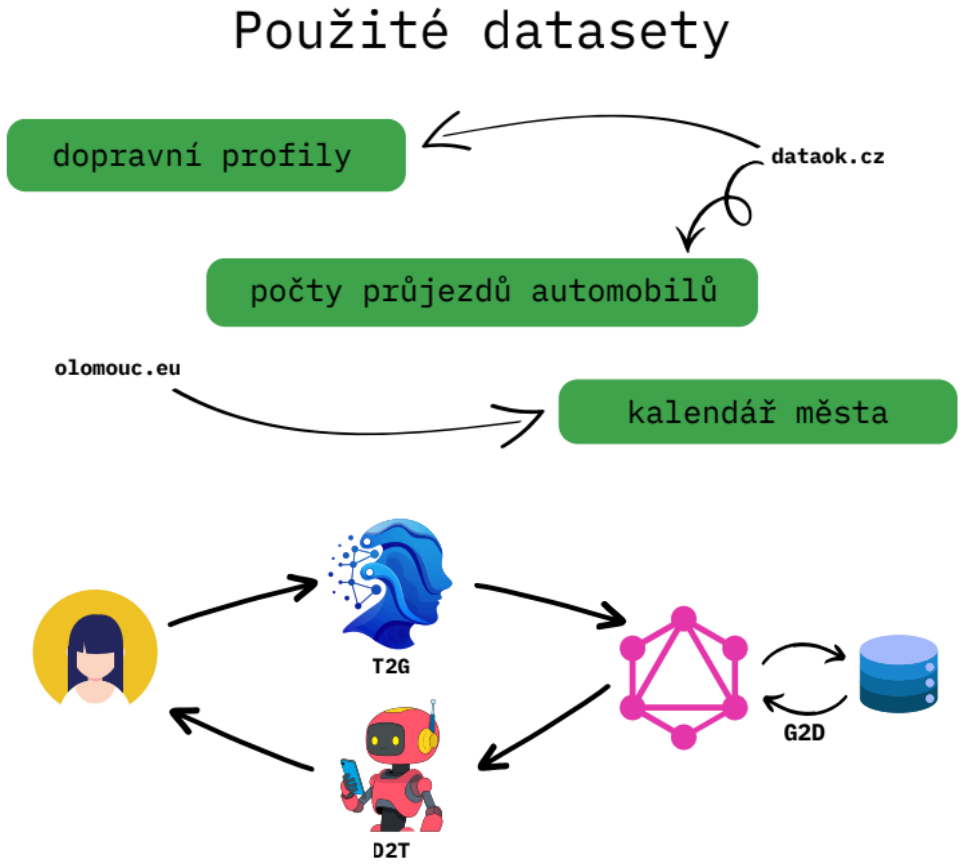
Predictive Road Degradation System

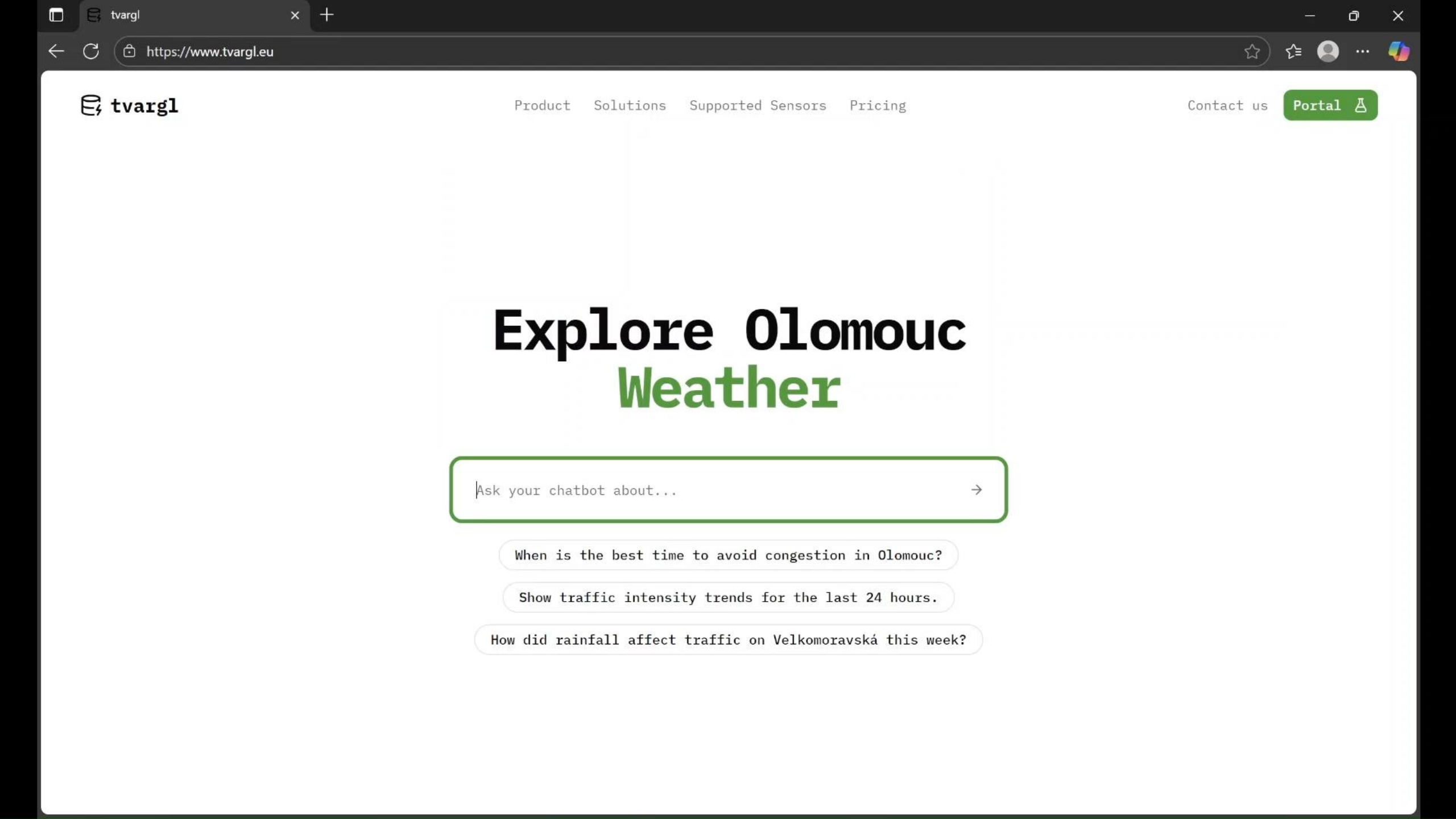
- **The Solution: AsphaltSence**
- A system that precisely measures where and when destructive factors are acting to prevent costly failures. The model answers the critical question: “When will control or repair be necessary?”
- **How It Works**Uses live sensor data (weather and traffic) to continuously track the **Road Stress Trend**, rather than waiting for visible damage.
- Analyzes daily data on weather, trucks, and critical moments to calculate daily wear and tear.
- Generates a **Road Stress Index**—a number that indicates when intervention is necessary.
- Includes an AI predictive degradation model and automatic detection of critical events.
- **Key Benefits & Savings****Proactive Planning:** Allows cities and municipalities to plan maintenance in advance.
- **Cost Efficiency:** Early intervention (**150,000 Kč/km**) is significantly cheaper than major emergency repairs (**15,000,000 Kč/km**).1
- Enables better budget allocation and prolongs the lifespan of the asphalt.


React App
localhost:3000
Doporučuju se kontrola!
Úroveň ADI za posledních 6 měsíců rychle rostla.
Trend ADI v čase
Agregovaný denní index poškození (ADI) a trend
3,266
Celkový ADI
4 dnů
5+ událostí
ADI (denní)
Celkový ADI
180
135
90
45
0
3,400
2,550
1,700
850
0
03. 10. 05. 10. 07. 10. 09. 10. 11. 10. 13. 10. 15. 10. 17. 10. 19. 10. 21. 10. 23. 10. 25. 10. 27. 10. 29. 10. 31. 10. 02. 11. 04. 11. 06. 11. 08. 11. 10. 11.
ADI (denní) Celkový ADI Trend adi
Kritický den (5+ událostí)
Trend

AI summarization of weather

- **Core Concept**: An analytical tool utilizing the **Gemini 2.5 Flash** model to interpret data through natural language queries.
- **Key Functionality**: It allows users to ask complex questions about traffic data—such as car types and arrival counts at specific locations like "Parkoviště Flora"—and provides aggregated visualizations and analysis.
- **Data Sources**: The tool integrates datasets from **olomouc.eu**, **dataok.cz**, and city calendars, focusing on traffic profiles and vehicle passage counts.
- **Value Proposition**: Offers reliable, hallucination-free outputs with transparent sources, saving time and costs through automated pre-analysis.
- **Business Use Cases**: Targeted at **B2B** (predictive machine maintenance) and **B2G** (predictive maintenance for sensor-equipped infrastructure)




tvargl
https://www.tvargl.eu
tvargl
Product
Solutions
Supported Sensors
Pricing
Contact us
Portal
Explore Olomouc
Weather
Ask your chatbot about...
When is the best time to avoid congestion in Olomouc?
Show traffic intensity trends for the last 24 hours.
How did rainfall affect traffic on Velkomoravská this week?

When Data Speaks

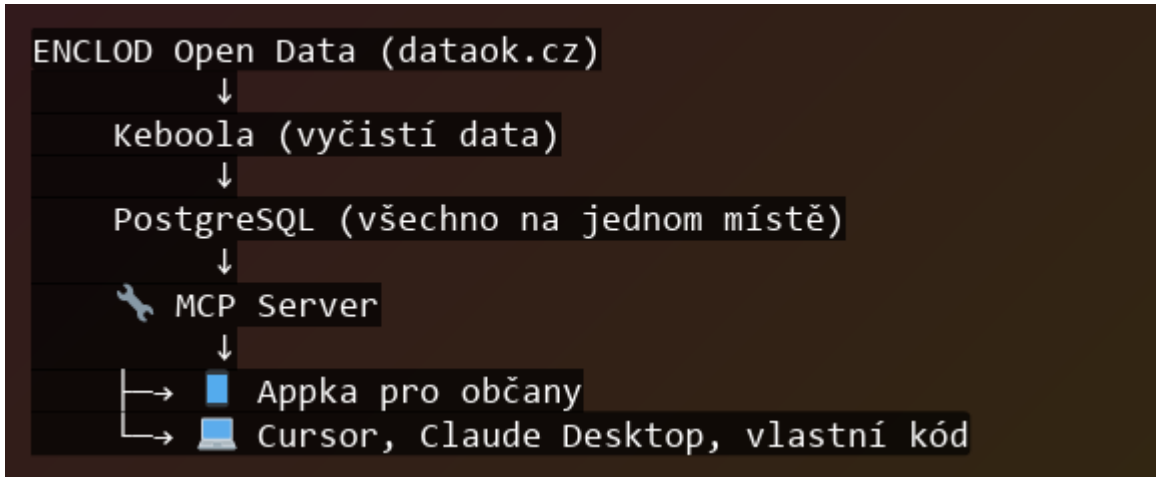
•**The Goal:** Developed by Team Stacktracers for Hackathon UPOL 2025, this project answers the everyday question: "Where can I find peace in Olomouc?".

•**Core Architecture:** A scalable platform built on the concept of "One backend. Two target groups.".

•**Solution 1: Oli App (For Citizens):** A smart wellness application and city guide. It helps users quickly find quiet spots to relax by analyzing real-time temperature, traffic density, and subjective "feeling maps".

•**Solution 2: MCP Server (For Data Professionals):** A dedicated data tool that uses AI to extract and analyze database information, completely eliminating the need to write complex SQL queries.

•**The Data Pipeline:** It utilizes live ENCLOD Open Data (real-time meteorology and traffic) alongside sentiment data. This data is cleaned via Keboola, centralized in a PostgreSQL database, and served through an MCP Server.

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