

Challenge “Routeplanning & Logistics”



HOCHSCHULE HEILBRONN



Imagine planning an entire city's delivery network.

At *Hack the Route*, you'll take control of urban logistics and lead it into the AI era.



Problem:

- Many small and medium businesses still plan their routes **manually** (Excel, phone, paper).
- Often **one person** is responsible for all planning under high time pressure.
- New orders, changes, depots and parking locations must be **constantly updated**.
- This makes planning **slow, error-prone and stressful**.

Opportunity:

- Use **GenAI, smart interfaces and KI-workflows** to support
- Build a **very lean, but flexible** planning process that can be reused across many SMEs.
- Turn route planning from a bottleneck into a **smart, assistive workflow**.

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Your Mission:

- Design a **minimal core workflow** for daily tour planning in SMEs.
- Build an **intuitive interface** for a single planner to
 - enter/import new orders,
 - manage depots, intermediate stops and parking locations
- Focus on:
 - Simple but Flexible process
 - Interactive and Smart interface
 - Integration of GenAI, AI-Workflow, AI-Agents

Using existing open-source route optimisation is **optional bonus**, not the main task.

Your Impact:

- The planner can create daily routes **faster and with less stress**.
- SMEs get a **practical, adaptable blueprint** for smart route planning.
- Low entry barrier: can be used even by companies with **very limited IT resources**.
- You help bring **real KI-support** into everyday operations of small businesses not as a buzzword, but as a working tool.



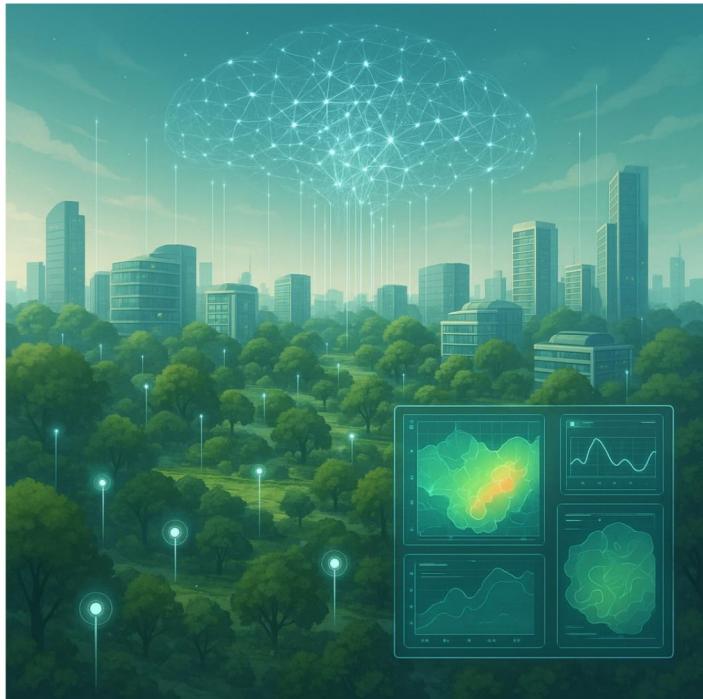
Challenge “Sensors & smart cities”



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Imagine giving a city the ability to sense and to act.

At *Hack the Environment*, you'll transform raw environmental data into actionable intelligence.



Problem:

- Cities collect a lot of sensor data — air quality, weather, noise, traffic
- Anomalies (smog, heavy rain, noise spikes) are detected late
- Insights are rarely used for real decision
- There are few concrete applications that help citizens or the city

Cities often know **what happens**, but not **what to do with it**.

Opportunity:

- Sensor data helps cities detect environmental issues earlier, improve mobility, protect health, and react faster to extreme events.
- By combining air, weather, and noise data, cities can create new Smart City solutions and turn raw data into real value for citizens.

Challenge “Sensors & smart cities”



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Your Mission:

You will work with realistic multi-year sensor data from a Smart City: air quality, weather, and noise — including natural variation and built-in anomalies.

- Identify **patterns and trends** in the data
- Detect **anomalies** (peaks, dropouts, extreme events)
- Find **relationships** between sensors
 - e.g., $\text{NO}_2 \leftrightarrow$ traffic, ozone \leftrightarrow sunlight
- Visualize your insights
 - plots, heatmaps, small dashboards
- Create **3–5 concrete Smart City Use Cases** based on your findings

You are free to explore additional datasets from other cities if they help you develop stronger ideas or insights.

Your Impact:

At the end of the challenge, your team will produce **real, actionable Use Cases**, such as:

- Air Quality Traffic Alerts
- Heatwave Early Warning
- Event & Noise Monitoring
- Smart Irrigation Planning
- Emission Anomaly Detection