Task 1 [Jakobstraße / Gustav-Adolf-Straße] : Determine feasibility of adding bicycle lane and reducing motorized traffic to one lane in both directions

Group D - Mobility Modelers:

Satyajeet Sangram Jambure
Sanidhya Vinayak Londhe
Ved Yogesh Masekar
Mohammed Ahmad Ayman Obidou
Rohan Kumar Singh
Visman Jeet Singh Walia

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Contents

Team Member Roles and Tools

Team Member Roles

- Team Lead - Ved Yogesh Masekar
- Conceptual Model - Satyajeet Sangram Jambure
- Input Data Analyst - Rohan Kumar Singh
- Chief Software Architect - Mohammed Ahmed Ayman Obidou
- Validation and Quality Control - Sanidhya Vinayak Londhe
- Experiment Designer - Visman Jeet Singh Walia

Tools Used by Members

- Github - Collaboration
- Proton - Drive
- LaTeX (Overleaf) - Documentation

Assessment Criteria for Team Members Performance

- Attendance and punctuality
- Reliability
- Communication
- Cooperation and teamwork
- Responsibility
- Initiative
- Quality of contribution
- Participation in team organisation

Photographs of Current Traffic Situation

Location where the current bicycle lane ends

Traffic signal in front of the NP store

Beginning of the project section

End of the project section

What is Special about Jakobstraße / Gustav-Adolf-Straße?

- Wide urban corridor with potential for bicycle lane integration.
- Signalized intersection with multiple traffic movements.
- Supports both passing traffic and access to nearby properties.
- Pedestrian crossings influencing safety and traffic flow.

- Curbside parking and roadside activity affecting capacity.
- Suitable for road-space reallocation analysis.
- Good case for evaluating sustainable urban mobility measures.

What Data is Needed for the Simulation Model?

- **Traffic counts:** Number of vehicles by direction and time interval.
- **Vehicle types:** Share of cars, trucks, buses, and bicycles.
- **Turning movements:** Left-turn, right-turn, and straight movements.
- **Signal data:** Traffic light phases and cycle times.
- **Road layout:** Lane configuration, section lengths, and intersection geometry.

- **Speed data:** Speed limits and observed operating speeds.
- **Calibration data:** Queue lengths, delays, and travel times.
- **Pedestrian activity:** Crossing demand and pedestrian interaction.
- **Curbside effects:** Parking activity, loading, and local access interference.
- **Bicycle data:** Current cyclist volume and bicycle lane usage.

Four Experiments to be Conducted

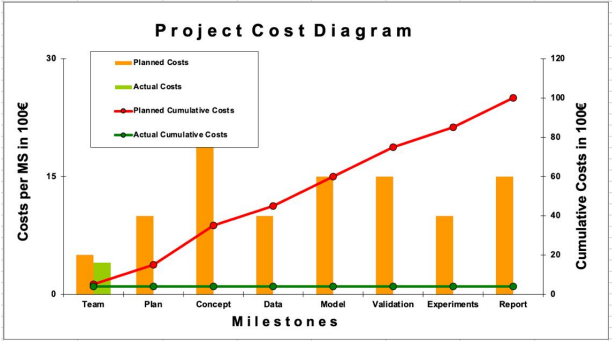
- **Experiment 1: Baseline Multimodal Kinematics**
  Model the existing traffic situation with current road geometry, traffic lights, vehicle flows, and tram movement to establish the baseline traffic and safety conditions.
- **Experiment 2: Protected Bike Lane Segregation**
  Test a redesigned layout with a physically separated bicycle lane and evaluate its impact on cyclist safety, traffic conflicts, and motor vehicle delay.
- **Experiment 3: Time-of-day operation scenario**
  Determine peak hour traffic and model it. Obtain information about how we can minimise congestion.
- **Experiment 4: Leipziger Kombispur Saturation**
  Study a mixed-use lane configuration under increasing traffic demand to identify the point at which congestion, instability, or unsafe interactions become critical.

Lessons Learned and Experience Gained

- Clear role division improves teamwork and accountability.
- Real-world observation is necessary before modelling.
- Reliable data is critical for meaningful simulation results.
- Scope control is important for a manageable model.

Costs

B	C	D	E	F	G	H	I	J
milestone	***plan***	***actual***	***sum plan***	***sim actual***			Planned Costs	
Team	5	4	5	4			Actual Costs	
Plan	10		15	4			Planned Cumulative Costs	
Concept	20		35	4			Actual Cumulative Costs	
Data	10		45	4				
Model	15		60	4				
Validation	15		75	4				
Experiments	10		85	4				
Report	15		100	4				
Total	100	4						



Thanks for your attention!