



# BOOK OF PROCEEDINGS

# INTERNATIONAL CONFERENCE SUSTAINABLE MOBILITY

**5-6 MARCH**

# 2026

The INTEC International Conference brings together academics, researchers, policymakers and industry experts to discuss innovative approaches and collaborative solutions for a sustainable future in engineering and mobility. The conference will be hosted by POLIS University in Tirana, Albania, and co-organized by partners from across the EU as part of the Erasmus+ CBHE Project 101081873-ERASMUS-EDU-2022-CBHE-STRAND-2.



INTEC International Engineering Competence Centres to push sustainable mobility development in Albania and Montenegro  
Project Reference: 101081873-ERASMUS-EDU-2022-CBHE-STRAND-2

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Project Partners:



**INTEC International Conference**  
February 2026  
POLIS University, Tirana, Albania

**INTEC**>>>



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**INTEC International Conference**  
February 2026  
POLIS University, Tirana, Albania

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**CHILDREN'S PATHS AS AN URBAN REGENERATION STRATEGY: NAIM FRASHËRI'S CASE  
STUDY**

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**Abstract**

*The research aims to highlight some street regeneration projects in the city of Tirana. Those interventions, focused on the areas in proximity to schools gives the name to the project “children streets” (Rrugët për Fëmijët). These interventions are part of a programme initiated by Simon Battisti with “Relation Center” (Qendra Marrëdhënie) in collaboration with the Municipality of Tirana and several international partners. The interventions are focused on some axes in the city where the path for children and bikes was not safe or even planned due to the fast development Tirana went through. These interventions aim to initiate not only a physical intervention but also to generate a new way of perceiving and living the urban space as a functional and safe public space. The action aims to integrate a special planning to generate more specific spaces able to host actions and functions related to the schools and their stakeholders by prioritizing playgrounds, pedestrians, safety, and social interactions rather than cars and commerce. This action wants to implement strategies, such as car limitation during school hours, sidewalk widening, traffic calming, play and sitting elements, together with art intervention as a new model able to rehabilitate specific and critical portions of the city. Evidence from pilot projects shows a real reduction of vehicular speed and volume, increased walkability, and higher safety for pedestrians, highlighting the model as a different way of mobility, as a combination of the existing situation with small interventions is a good practice for people who live in the neighborhood. The paper shows the Tirana School Street program as an efficient way to promote equitable, healthy, and pedestrian-centered mobility as a model for embedding child-focused design principles into municipality planning and its future scenarios in the city. This set of tools can also be integrated not only in the existing layout of the city, but due to the fast development it’s having, it should become a reference model for the new areas that are growing with the city itself.*

**Keywords:** urban planning, pedestrian mobility, education

## **I. INTRODUCTION**

Cities undergoing rapid transformation often struggle to balance economic growth with the quality of everyday urban life. Tirana, the capital of Albania, is a particularly illustrative case, shaped by accelerated urban development following the transition from a socialist regime characterized by centrally controlled, top-down planning and standardized building practices to a post-socialist period marked by widespread informality and bottom-up spatial reconfiguration in reaction to previous rigid controls (Aliaj et al., 2003; Pojani, 2013). These overlapping processes have generated a complex urban system characterized by fragmented governance and contested spatial practices. In recent decades, intense construction activity has further contributed to fragmented planning and the progressive reduction and privatization of public space (Pojani, 2010). While this period has brought architectural experimentation and economic dynamism, it has also produced significant challenges related to air pollution, traffic congestion, and the persistent lack of pedestrian-oriented public environments. These challenges disproportionately affect vulnerable urban users, particularly children, whose independent mobility and access to safe and inclusive public spaces have been significantly reduced.

The concept of child-friendly urban environments emphasizes that cities designed for children tend to be safer, healthier, and more inclusive for all residents (UNICEF, 2018). However, contemporary urban development models have largely prioritized vehicular mobility and real estate valorization, often at the expense of walkability and street safety (Gehl, 2010). In post-socialist cities, these dynamics are intensified by rapid institutional change and limited regulatory capacity, resulting in uneven urban outcomes (Tsenkova, 2006).

In this context, the “School Streets” (Rrugët për Fëmijët) program in Tirana is a strategic intervention to reclaim everyday streets as spaces for children, caregivers, and local communities in specific areas of the city. The program focuses on streets surrounding schools, which are often in areas where multiple layers of buildings have created congested, unsafe, and inaccessible spaces. By temporarily or permanently restricting vehicular traffic and introducing low-cost spatial interventions, the initiative seeks to transform these streets into pedestrian-priority environments, especially for children and older adults. This paper examines how such small-scale, tactical interventions can contribute to broader goals of equitable and sustainable mobility in a rapidly transforming urban context.

The School Streets program sits at the intersection of three key bodies of literature: child-friendly cities, tactical urbanism, and sustainable urban mobility. The child-friendly cities framework, promoted by UNICEF (2018), argues that children have a right to safe mobility, access to public

space, and participation in shaping their environments. Designing cities for children is increasingly recognized as a benchmark for inclusive urbanism, as it prioritizes safety, proximity, and human-scale environments that benefit diverse populations, including older adults and people with disabilities (Karsten, 2015).

Tactical urbanism refers to low-cost, temporary, and scalable interventions that test alternative uses of urban space and catalyze longer-term policy change (Lydon & Garcia, 2015). These approaches are particularly relevant in contexts of rapid change and limited resources, allowing municipalities and civil society actors to experiment with new spatial configurations without committing to large-scale infrastructural investments. Tactical interventions have been shown to influence public perception and institutional practices, often serving as precursors to more permanent transformations (Douglas, 2014).

These principles have been applied in a variety of contexts. For instance, the “Play Streets” initiatives in England (UK) provide safe, child-friendly urban spaces by temporarily closing residential streets to motorized traffic at specific times of day. Originally introduced as small-scale pilot projects in 2008, Play Streets have since been progressively institutionalized and expanded, with programs implemented across London’s boroughs and in numerous other cities throughout the country, contributing to the normalization of child-centered street design and community-led street management (Playing Out, 2020).

From a mobility perspective, transforming streets around schools into pedestrian-priority zones aligns with sustainable transport paradigms that seek to reduce car dependency and promote active modes of travel. Walking and cycling to school have been associated with positive outcomes for children’s physical health, cognitive development, and social autonomy (Mitra, 2013; World Health Organization, 2017). However, rising traffic volumes and parental safety concerns have led to a long-term decline in children’s independent mobility in many cities (Hillman et al., 1990). The School Streets model responds directly to this trend by creating safer, more convivial environments for everyday school travel.

A well-established international example of temporary street space reallocation is the Ciclovía program in Bogotá. On December 15, 1974, a group of residents first closed approximately five kilometers of major roads to car traffic for a few hours, giving rise to what later became known as Ciclovía, or Open Streets. Since then, the initiative has evolved into a recurring citywide program and a global model, inspiring more than 400 cities worldwide to implement similar schemes. Like many major metropolitan areas, Bogotá faces severe traffic congestion and mobility challenges. Nevertheless, every Sunday the city is transformed into an extensive network of car-free routes, where pedestrians and cyclists are prioritized alongside public transport. Private vehicles remain permitted on designated corridors, enabling essential mobility while temporarily redistributing

street space in favor of non-motorized users. This weekly transformation allows residents to experience the city in healthier, safer ways, fostering inclusive public life and enabling families and people of different ages to appropriate the street as a shared social space.

## **II. METHODS**

This study adopts a qualitative case study approach to examine the School Streets program in Tirana. The analysis draws on project documentation produced by Qendra Marrëdhënie, municipal planning reports, field observations, and descriptive data from pilot interventions implemented in selected neighborhoods. Observational analysis of transformed street environments is used to assess changes in spatial configuration, patterns of use, and forms of social interaction.

While the study does not rely on large-scale quantitative mobility datasets, it incorporates available qualitative and descriptive evidence related to traffic speed reduction, pedestrian presence, and perceived safety as reported by project partners and local stakeholders. This methodological approach enables an in-depth understanding of processes, design principles, and governance mechanisms shaping the interventions, although it limits the statistical generalizability of the findings.

The primary case examined concerns the reformulation of a street in a semi-central area of the city, where a new pedestrian itinerary has been introduced to support the objectives outlined by the School Streets project. These interventions aim to establish a new spatial boundary through architectural and artistic elements, making the route for children visually legible, recognizable, and practically usable for everyday users.

The site can be understood as an urban palimpsest shaped by at least three major phases in the growth of the capital, reflecting broader political, social, and planning transformations. Before the communist period, the area retained predominantly rural characteristics, with small, single-family houses, informal gardens, and a low-density settlement pattern. With the implementation of the regime's social housing program in 1954, the area underwent an initial phase of planned densification, introducing multi-family residential blocks and rational, low-cost planning principles. In this phase, public space was conceived as a functional component of the neighborhood structure. Subsequent urban growth, particularly in the post-socialist era, further transformed the area through incremental infill, informal construction, and increasing pressure on open spaces, resulting in a layered urban fabric where rural morphology, socialist-era planning, and contemporary development coexist. This overlapping of spatial logics has produced a heterogeneous urban environment characterized by fragmented public spaces, contested street uses, and tensions between built form and public accessibility (Aliaj et al., 2003; Pojani, 2013).

Within this context, the site of the Naim Frashëri Middle School illustrates how the space surrounding the school has been subject to continuous shrinkage due to both encroaching buildings and informal development during the late 1990s. The perimeter roads around the school are generally composed of two lanes, with one lane often used for parking. This arrangement creates visual clutter and forms an unsafe ring around the school, constraining pedestrian movement and reducing the usability of outdoor spaces for students.

The Naim Frashëri project demonstrates how reducing car lanes and expanding pedestrian pathways, while removing informal parking, can reclaim public space where formal planning has been lacking. A second layer of intervention employs artistic elements, visually integrating the street improvements and reinforcing the newly defined pedestrian environment (Fig.1, Fig.2).



*Figure 1. Naim Frashëri school 2007 before the intervention.*



*Figure 2. Naim Frashëri school after the 2024 intervention.*

The School Streets program was initiated by Simon Battisti through the Relation Center (Qendra Marrëdhënie), in collaboration with the Municipality of Tirana and international partners. The program targets urban streets surrounding schools where pedestrian and cycling infrastructure was previously inadequate. These environments often feature narrow sidewalks, informal parking, and high traffic volumes, creating unsafe conditions during peak school hours.

Consistent with tactical urbanism principles (Lydon & Garcia, 2015), the program employs incremental and participatory interventions. Temporary traffic restrictions during school start and end times are combined with spatial elements such as painted street surfaces, modular seating, and play installations. These measures improve safety while challenging dominant perceptions of streets as exclusively vehicular spaces.

Preliminary evidence from pilot projects suggests reductions in vehicle speed and traffic volume during school hours, accompanied by increased pedestrian presence and social interaction. These outcomes reflect broader findings in the literature on traffic calming and pedestrianization, which indicate that reallocating street space enhances both safety and social vitality (Gehl, 2010; WHO, 2017). Beyond immediate mobility outcomes, the School Streets program contributes to a cultural shift in the perception and use of public space. By foregrounding children as legitimate users of the

street, the program challenges car-centered hierarchies and promotes a relational understanding of urban space (UNICEF, 2018).

Following the initial pilot, the strategy has been expanded to other schools across the city, including Mihal Grameno and Gustav Mayer, with new paths being implemented in the Blloku area to provide safe routes for pedestrians, cyclists, and other sensitive users.

### **III. RESULTS**

The School Streets (*Rrugët për Fëmijët*) program in Tirana demonstrates the potential of child-centered, tactical street interventions to create safer, healthier, and more inclusive urban environments. In a rapidly developing post-socialist city, small-scale, low-cost, and participatory approaches offer a viable pathway for embedding principles of equitable mobility within municipal planning frameworks. By reclaiming streets for pedestrians and children, the program not only enhances safety and accessibility but also fosters social interaction, community engagement, and a sense of ownership over public space.

While the project significantly improved both the visual and functional quality of the streets around the school, no sustainable measures were implemented to compensate for the parking spaces removed during the redevelopment (Fig.3). This, combined with the growing demand for parking in the city, has generated dissatisfaction among residents, who are often forced to park farther from their homes. The situation highlights a tension between pedestrianization and child safety objectives and the everyday mobility needs of residents. It also underscores that effective urban mobility interventions must balance pedestrian safety with accessibility for all users, creating inclusive and functional public spaces while minimizing conflicts between different street users (Gehl, 2010; Lydon & Garcia, 2015; WHO, 2017).

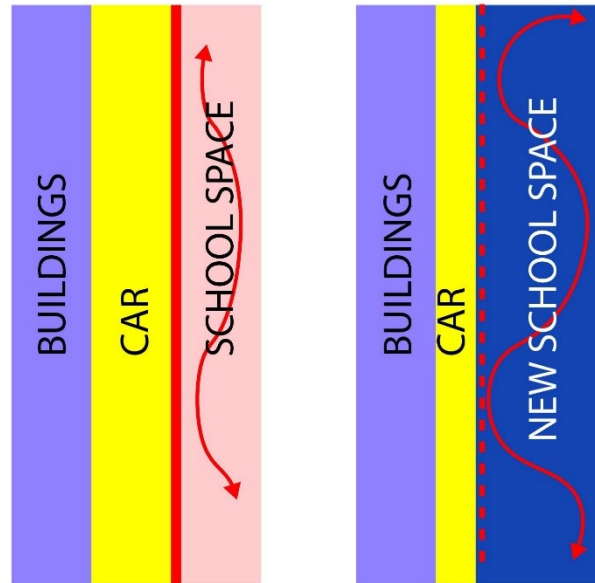


Figure 3. Diagram of the pedestrianized street layout (before/after).

These experiences suggest that future interventions should integrate tactical, child-focused street designs with comprehensive urban mobility strategies, including sustainable parking management and multi-modal transport planning. Such integration would ensure that public space improvements benefit both children and the broader community, supporting a more resilient, socially cohesive, and livable city. By connecting small-scale, tactical measures with broader planning frameworks, Tirana has the opportunity to demonstrate how post-socialist cities can reconcile rapid urban growth with equitable, child-friendly, and sustainable mobility practices.

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**International conference on sustainable mobility**

**Agenda**

**Project title:** International Engineering Competence Centres to push Sustainable  
 Mobility Development in Albania and Montenegro  
**Acronym:** INTEC

<b>Work package</b>	
<b>WP11</b>	<b>International conference</b>
<b>TASK</b>	
11.4	Community Building Events

<b>Dates</b>	05.03.-06.03.2026
<b>City</b>	Tirana
<b>Meeting venue</b>	POLIS University Entrance Hall
<b>Address</b>	Rr. Bylis 12, Kodi Postar 1051, Kutia Postare 2995, Tirana, Albania

<b>05.03.2026</b>	
Entrance Hall, POLIS University	
<b>8:30 - 9:00</b>	<b>Registration</b>
<b>9:00 - 9:30</b>	<b>Opening Performance</b>
<b>Welcome session - Auditorium A5 (Ground floor)</b>	
<b>9:30 - 10:00</b>	<b>Opening Remarks</b> Dr. Elona Karafili (Vice Rector, POLIS University) Dr. Flora Krasniqi (Head of Office of Projects and Internationalization, POLIS University) DI Daniela Wenzl (INTEC Project Coordinator)
<b>Auditorium A5 (Ground floor)</b>	
<b>10:00 - 11:00</b>	<b>Keynote speakers</b> DI Horst Pflügl AVL Collaborative Research for sustainable Mobility DPSHTRR Representative - (General Directorate of Road Transport Services in Albania)
<b>11:15 - 11:30</b>	<b>Coffee break (Moving into parallel sessions)</b>

11:30	SESSION 1: POLITICAL AND REGULATORY FRAMEWORK AULA B1	SESSION 2: TECHNOLOGICAL INNOVATION AULA B4
11:30 - 11:45	<b>Opening Session:</b> Prof. Emeritus dr Nataša Gospić (FSKL)	<b>Opening Session:</b> Associate Prof. Ivan Tolj (US)
11:45 - 12:00	<b>Integrating Event Data Recorder (EDR) Technology into Sustainable Road Safety Frameworks within the European Green Deal</b> Eriselda Alimeti, Parid Milo, Mentor Çejku, Anis Sulejmani, Odhisea Koça	<b>Empirical Comparative Study of Structural CFRP Sandwich Structure Inserts for Out-of-Plane loads</b> Imre Kovács
12:00 - 12:15	<b>Infrastructure Readiness for Sustainable Mobility: EU Frameworks and the Case of Albania</b> Ervin Kalemaj, Parid Milo, Mentor Çejku, Anis Sulejmani, Odhisea Koça	<b>The Role of Intermodal Transportation for the Sustainable Mobility</b> Márton Kovács
12:15 - 12:30	<b>Review of the Evolution of International Ship Energy Efficiency Regulations and the Albanian context</b> Dr. Blenard Xhaferaj, Doklejda Hodaj	<b>Impact of Heat Pump Systems on Winter Energy Use and Driving Range in Battery Electric Vehicles</b> Luis Henrique Pereira Martins
12:30 - 12:45	<b>Renewable Energy Procurement (CPPA) and Transport Electrification: European Perspectives and Albanian Challenge</b> Antonio Ndoci, Anis Sulejmani, Odhisea Koça, Mentor Çejku, Parid Milo	<b>Liquid Cooling Systems for Electric Vehicle Batteries: Improving Safety, Performance and Sustainability</b> João Miguel de Almeida Ribeiro Silva
12:45 - 13:00	<b>The Current Status of Autonomous Vehicle</b>	<b>Analysis of Battery Charging and Discharging Behavior for Electric Vehicle Applications</b> Leona Markic, Luka Filipović

	<b>Technology Adoption in the Balkan Region</b> Darjana Lopičić, Oliver Popović, Miloš Ilić, Bojan Kocić	
<b>13:00 - 14:00</b>	<b>Lunch</b>	
<b>14:00 - 14:15</b>	<b>Reviewing the European Green Deal in Energy, Mobility and Industry</b> Veselinka Calasan, Ivana Ognjanović	<b>Automotive Cooling Systems Sustainability: A Focus on the Expansion Tank</b> Ana Inês Barbeiro Casimiro
<b>14:15 - 14:30</b>	<b>The European Green Deal and its National Implementation: From Strategy to Practice</b> Blerina Bektashi, Andi Bektashi	<b>Design and Development of a Constant-Volume Combustion Chamber for Optical Investigation of Hydrogen and Water Injection Under Engine-like Conditions</b> Julius Hollerith, Prof. Dr. Bhavin Kapadia
<b>14:30 - 14:45</b>	<b>From Prediction to Regulation: Evidence Production Approaches in Autonomous Mobility Research and Their Policy Implications</b> Sadmira Malaj	<b>Emission Reduction of Marine Propulsion Systems in SECA Zones Through the Integration of Hydrogen Technologies</b> Motaleb Miri, Ivan Radaš, Marija Mandić, Ivan Tolj
<b>14:45 - 15:00</b>	<b>Questions and Discussion</b>	<b>A Comprehensive Analysis of Ventilation System for Enhanced Energy Efficiency in Marine Propulsion Applications</b> Sara Blašković, Gojmir Radica, Jakov Šimunović

15:00 - 15:15		<b>Design and Topology Optimization of a Lightweight Chain Sprocket for Electric Motorcycle Applications</b> Teo Čolović, Ivo Marinić-Kragić
15:15 - 15:30	<b>SESSION 3: ECONOMIC AND BUSINESS PRESPECTIVES + CASE STUDIES AND GOOD PRACTICES</b> Aula B1	<b>Questions and Discussion</b>
	<b>Opening Session:</b> Dr. Anis Sulejmani (PUT)	
15:30 - 15:45	<b>Managing Renewable Energy Resources as a Foundation for Sustainable Mobility Transitions</b> Deivi Sinanaliaj, Martin Bektashi	
15:45 - 16:00	<b>Feasibility of Electric Bus deployment in Montenegro: A Case Study of Budva (Erasmus+ INTEC / IECC Context)</b> Anastasija Mrkajic, Vinko Nikic.	
16:00 -16:15	<b>Children Paths as an Urban Regeneration Strategy: Naim Frasheri Study Case</b> Dejvi Dauti	
16:15 - 16:45	<b>Questions and Discussion</b>	

## International conference on sustainable mobility

# Agenda

**Project title:** International Engineering Competence Centres to push Sustainable Mobility Development in Albania and Montenegro  
**Acronym:** INTEC

<b>Work package</b>	
WP11	International conference
<b>TASK</b>	
11.4	Community Building Events

<b>Dates</b>	05.03.-06.03.2026
<b>City</b>	Tirana
<b>Meeting venue</b>	POLIS University Entrance Hall
<b>Address</b>	Rr. Bylis 12, Kodi Postar 1051, Kutia Postare 2995, Tirana, Albania

06.03.2026		
First Floor Hall, POLIS University		
8:30 – 9:00	Registration	
9:00– 9:15	SESSION 4: SOCIAL AND ENVIRONMENTAL IMPACT AULA B1	SESSION 5: FUTURE SCENARIOS AULA B4
9:00 – 9:15	Opening Session: Prof. Dr. Bhavin Kapadia (FHF)	Opening Session: MA Adrian Millward-Sadler (FHJ)
9:15 – 9:30	Comparison of Lifecycle Emissions of a SUV with Fuel Cell and Battery Electric Powertrains - Bhavin Kapadia, Alper Sayin, Sandra Eisenträger	GENAI Literacy as a Transversal Skill for Emerging Professionals: Implications for Sustainability- Critical Knowledge Work - Adrian Millward-Sadler
9:30 – 9:45	Smart Mobility Technologies and their Impact on Urban Sustainability: Insights from	Effects of Technical Traffic Calming Measures – Filip Perović

	<b>European and Western Balkan Cities –</b> Alma Gjonaj, Vjola Ziu	
<b>9:45 – 10:00</b>	<b>The Disappearing Squares: Social and Environmental Impacts of Urban Mobility Planning in Durres –</b> Arjola Sava	<b>Cybersecurity Vulnerabilities in Electric Vehicle Operating Systems: A Global Awareness Analysis –</b> Aleksa Radević
<b>10:00 – 10:15</b>	<b>The City that Demands Continuous Movement: The Disappearance of the Right not to Move within the Framework of Sustainable Mobility –</b> Avrili Meshi	<b>Development of a risk assessment model for the transport of hazardous materials using ALOHA and GIS software tools –</b> Marko Radetić
<b>10:15 – 10:30</b>	<b>Between Rhetoric and Reality: Discursive Framings, Greenwashing and Outcomes in Sustainable Mobility –</b> Kejsi Veselagu	<b>Mapping Distance and Time Leveraging Isochrone Intelligence in Emerging Cities –</b> Andia Vllamasi, Erjon Cobani
<b>10:30 – 10:45</b>	<b>Reimagining the City Through Green Mobility Strategies: The Case of Tirana –</b> Vjola Ziu, Alma Gjonaj	<b>Can AI develop its Own “Taste” Automotive Design? –</b> Gregor Andoni, Kristjana Meço
<b>Coffee Break</b>		
<b>11:00 – 11:15</b>	<b>Linking Morphology, Perceived Safety, and Sustainable Mobility in Post-Socialist Urban Contexts–</b> Sindi Doce	<b>Optimizing Public Transport Corridors Using AI-Based Scenario Modelling: A case Study on Tirana’s Ring Road –</b> Erjon Çobani, Julian Beqiri, Merita Guri
<b>11:15 – 11:30</b>	<b>Towards Sustainable Transport: A Comparative Analysis of Electric Vehicle Adoption in Montenegro and Albania –</b> Radmila Milić	<b>Threat Landscape and Multi-Layered Protection Mechanisms for Autonomous and Electric Vehicle Systems –</b> Marko Asanovic, Oliver Popović, Zoran Avramović, Nataša Gospić

11:30 - 11:45	Questions and Discussion	Cybersecurity Challenges in Modern Vehicular Communication Networks - Aleksandar Grgurević, Nataša Gospić, Oliver Popović
11:45 - 12:00		Green Transition in Albania: Challenges and Future Actions - Erik Kushta, Andi Hyka, Enea Nasto
12:00 - 12:15	SESSION 6: CONTROVERSIES AND CHALLENGES Aula B1	Use of AI in the Process of Green Transformation and Impact on Public Health - Esmeralda Hamiti, Federika Alliaj, Kristi Metushi
	Opening Session: Prof. Kristofor Lapa (UV)	
12:15-12:30	The Adoption of Electric Vehicles in Albania: A Comparative Study with Other Western Balkan Countries - Doklejšda Hodaj, Andrea Lapa	Development of an Automatic Traffic Sign Detection System Using YOLOv8 - Valentina Vojinović, Luka Filipović
12:30-12:45	Application of Quality Tools in the Analysis of Factors Influencing the Development of Electromobility in Montenegro - Jelena Šaković Jovanović, Draško Jovanović, Mirjana Grdinić Rakonjac, Marko Lučić, Miloš Perović, Aleksandar Vujović, Gordana Radulović	The Historical Development of Artificial Intelligence and Its Influence on the job market in Automotive Engineering - David Josef Pilgram
12:45 - 13:45	Questions and Discussion	Questions and Discussion
13:45	Lunch	