



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

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

Project Partners:



INTEC International Conference
February 2026
POLIS University, Tirana, Albania

INTEC>>>



ISBN 9789928347268

DOI: 10.37199/c41001000

Copyrights @POLIS Press

INTEC International Conference
February 2026
POLIS University, Tirana, Albania

INTEC>>>



Co-funded by the
Erasmus+ Programme
of the European Union

Partner Universities

Project Coordinator: FH JOANNEUM Gesellschaft mbH (FHJ), Austria
Frankfurt University of Applied Sciences (FRA-UAS), Germany
University of Split (US), Croatia
POLIS University (POLIS), Albania
Polytechnic University of Tirana (PUT), Albania
University of Vlore "Ismail Qemali" (UV), Albania
University of Montenegro (UOM), Montenegro
Adriatic University Bar (FSKL), Montenegro
University of Donja Gorica (UDG), Montenegro
AVL List GmbH (AVL), Austria
Gama Auto d.o.o. (GA), Montenegro
NVO Alfa Centar (AC), Montenegro

Conference Chair

DI Daniela Wenzl
Dr. Elona Karafili
Dr. Flora Krasniqi

Conference Keynote Speaker

DI Horst Pflügl, AVL List GmbH (AVL), Austria
MSc. Mine Bushi, General Directorate of Road Transport Services in Albania

Scientific Committee

Prof. Emeritus Dr. Nataša Gospić, Adriatic University Bar (FSKL), Montenegro
Prof. Dr. Bhavin Kapadia, FH JOANNEUM Gesellschaft mbH (FHJ), Austria
Assoc. Prof. Dr. Ivan Tolj, University of Split (US), Croatia
Prof. Dr. Kristofor Lapa, University of Vlore "Ismail Qemali" (UV), Albania
Prof. Dr. Damir Sedlar, University of Split (US), Croatia
Prof. Dr. Boško Ilija Matović, University of Montenegro (UOM), Montenegro
MA Adrian Millward-Sadler, FH JOANNEUM Gesellschaft mbH (FHJ), Austria
Dr. Anis Sulejmani, Polytechnic University of Tirana (PUT), Albania
Dr. Enkelejd Mëhilli, University of Vlore "Ismail Qemali" (UV), Albania
Dr. Blenard Xhaferraj, Polytechnic University of Tirana (PUT), Albania
Dr. Elona Karafili, POLIS University (POLIS), Albania
Dr. Flora Krasniqi, POLIS University (POLIS), Albania
Dr. Ivana Ognjanović, University of Donja Gorica (UDG), Montenegro

Organizing Committee

DI Daniela Wenzl
Dr. Keti Hoxha
Dr. Flora Krasniqi
Dr. Elona Karafili
MSc. Sadmira Malaj
MSc. Sindi Doce
MSc. Glejdi Fejza

TABLE OF CONTENTS

1. POLITICAL AND REGULATORY FRAMEWORK9

***RENEWABLE ENERGY PROCUREMENT (CPPA) AND TRANSPORT ELECTRIFICATION:
EUROPEAN PERSPECTIVES AND ALBANIAN CHALLENGE 10***

***REVIEW OF THE EVOLUTION OF INTERNATIONAL SHIP ENERGY EFFICIENCY
REGULATIONS AND THE ALBANIAN CONTEXT 20***

***THE EUROPEAN GREEN DEAL AND ITS NATIONAL IMPLEMENTATION: FROM STRATEGY
TO PRACTICE 30***

***THE CURRENT STATUS OF AUTONOMOUS VEHICLE TECHNOLOGY ADOPTION IN THE
BALKAN REGION 42***

***INTEGRATING EVENT DATA RECORDER (EDR) TECHNOLOGY INTO SUSTAINABLE ROAD
SAFETY FRAMEWORKS WITHIN THE EUROPEAN GREEN DEAL 56***

***INFRASTRUCTURE READINESS FOR SUSTAINABLE MOBILITY: EU FRAMEWORKS AND THE
CASE OF ALBANIA..... 70***

***FROM PREDICTION TO REGULATION: EVIDENCE PRODUCTION APPROACHES IN
AUTONOMOUS MOBILITY RESEARCH AND THEIR POLICY IMPLICATIONS..... 82***

REVIEWING THE EUROPEAN GREEN DEAL IN ENERGY, MOBILITY AND INDUSTRY 98

2. TECHNOLOGICAL INNOVATIONS 107

AUTOMOTIVE COOLING SYSTEMS SUSTAINABILITY: A FOCUS ON THE EXPANSION TANK
 108

***EMPIRICAL COMPARATIVE STUDY OF STRUCTURAL CFRP SANDWICH STRUCTURE
 INSERTS FOR OUT-OF-PLANE LOADS*** 118

***LIQUID COOLING SYSTEMS FOR ELECTRIC VEHICLE BATTERIES: IMPROVING SAFETY,
 PERFORMANCE AND SUSTAINABILITY*** 132

***DESIGN AND DEVELOPMENT OF A CONSTANT-VOLUME COMBUSTION CHAMBER FOR
 OPTICAL INVESTIGATION OF HYDROGEN AND WATER INJECTION UNDER ENGINE-LIKE
 CONDITIONS*** 138

***ANALYSIS OF BATTERY CHARGING AND DISCHARGING BEHAVIOR FOR ELECTRIC VEHICLE
 APPLICATIONS*** 148

***IMPACT OF HEAT PUMP SYSTEMS ON WINTER ENERGY USE AND DRIVING RANGE IN
 BATTERY ELECTRIC VEHICLES*** 158

THE ROLE OF INTERMODAL TRANSPORTATION FOR THE SUSTAINABLE MOBILITY 166

***EMISSION REDUCTION OF MARINE PROPULSION SYSTEMS IN SECA ZONES THROUGH
 THE INTEGRATION OF HYDROGEN TECHNOLOGIES*** 176

***A COMPREHENSIVE ANALYSIS OF VENTILATION SYSTEM FOR ENHANCED ENERGY
 EFFICIENCY IN MARINE PROPULSION APPLICATIONS***..... 190

***DESIGN AND TOPOLOGY OPTIMIZATION OF A LIGHTWEIGHT CHAIN SPROCKET FOR
 ELECTRIC MOTORCYCLE APPLICATIONS***..... 200

3. ECONOMIC AND BUSINESS PRESPECTIVE 211

***FEASIBILITY OF ELECTRIC BUS DEPLOYMENT IN MONTENEGRO: A CASE STUDY OF
 BUDVA***..... 212

***MANAGING RENEWABLE ENERGY RESOURCES AS A FOUNDATION FOR SUSTAINABLE
 MOBILITY TRANSITIONS*** 224

4. SOCIAL AND ENVIRONMENTAL IMPACT..... 231

***SMART MOBILITY TECHNOLOGIES AND THEIR IMPACT ON URBAN SUSTAINABILITY:
 INSIGHTS FROM EUROPEAN AND WESTERN BALKAN CITIES***..... 232

<i>THE DISAPPEARING SQUARES: SOCIAL AND ENVIRONMENTAL IMPACTS OF URBAN MOBILITY PLANNING IN DURRËS.....</i>	<i>244</i>
<i>THE CITY THAT DEMANDS CONTINUOUS MOVEMENT: THE DISAPPEARANCE OF THE RIGHT NOT TO MOVE WITHIN THE FRAMEWORK OF SUSTAINABLE MOBILITY.....</i>	<i>256</i>
<i>COMPARISON OF LIFECYCLE EMISSIONS OF A SUV WITH FUEL CELL AND BATTERY ELECTRIC POWERTRAINS.....</i>	<i>264</i>
<i>BETWEEN RHETORIC AND REALITY: DISCURSIVE FRAMINGS, GREENWASHING AND OUTCOMES IN SUSTAINABLE MOBILITY.....</i>	<i>272</i>
<i>TOWARDS SUSTAINABLE TRANSPORT: A COMPARATIVE ANALYSIS OF ELECTRIC VEHICLE ADOPTION IN MONTENEGRO AND ALBANIA.....</i>	<i>284</i>
<i>LINKING MORPHOLOGY, PERCEIVED SAFETY, AND SUSTAINABLE MOBILITY IN POST-SOCIALIST URBAN CONTEXTS</i>	<i>296</i>
<i>REIMAGINING THE CITY THROUGH GREEN MOBILITY STRATEGIES: THE CASE OF TIRANA</i>	<i>304</i>
<i>5. CONTROVERSIES AND CHALLENGES</i>	<i>313</i>
<i>THE ADOPTION OF ELECTRIC VEHICLES IN ALBANIA: A COMPARATIVE STUDY WITH OTHER WESTERN BALKAN COUNTRIES</i>	<i>314</i>
<i>APPLICATION OF QUALITY TOOLS IN THE ANALYSIS OF FACTORS INFLUENCING THE DEVELOPMENT OF ELECTROMOBILITY IN MONTENEGRO.....</i>	<i>326</i>
<i>6. CASE STUDIES AND GOOD PRACTICES</i>	<i>335</i>
<i>CHILDREN PATHS AS AN URBAN REGENERATION STRATEGY: NAIM FRASHËRI'S CASE STUDY.....</i>	<i>336</i>
<i>7. FUTURE SCENARIOS.....</i>	<i>345</i>
<i>GENAI LITERACY AS A TRANSVERSAL SKILL FOR EMERGING PROFESSIONALS: IMPLICATIONS FOR SUSTAINABILITY-CRITICAL KNOWLEDGE WORK</i>	<i>346</i>
<i>CYBERSECURITY VULNERABILITIES IN ELECTRIC VEHICLE OPERATING SYSTEMS: A GLOBAL AWARENESS ANALYSIS.....</i>	<i>362</i>

CYBERSECURITY CHALLENGES IN MODERN VEHICULAR COMMUNICATION NETWORKS
..... **372**

MAPPING DISTANCE AND TIME: LEVERAGING ISOCHRONE INTELLIGENCE IN EMERGING CITIES..... **382**

THE HISTORICAL DEVELOPMENT OF ARTIFICIAL INTELLIGENCE AND ITS INFLUENCE ON THE JOB MARKET IN AUTOMOTIVE ENGINEERING **394**

GREEN TRANSITION IN ALBANIA: CHALLENGES AND FUTURE ACTIONS..... **406**

OPTIMIZING PUBLIC TRANSPORT CORRIDORS USING AI-BASED SCENARIO MODELLING: A CASE STUDY ON TIRANA’S RING ROAD **414**

USE OF AI IN THE PROCESS OF GREEN TRANSFORMATION AND IMPACT ON PUBLIC HEALTH..... **426**

EFFECTS OF TECHNICAL TRAFFIC CALMING MEASURES..... **432**

CAN AI DEVELOP ITS OWN “TASTE” AUTOMOTIVE DESIGN?..... **440**

THREAT LANDSCAPE AND MULTI-LAYERED PROTECTION MECHANISMS FOR AUTONOMOUS AND ELECTRIC VEHICLE SYSTEMS **448**

DEVELOPMENT OF A RISK ASSESSMENT MODEL FOR THE TRANSPORT OF HAZARDOUS MATERIALS USING ALOHA AND GIS SOFTWARE TOOLS..... **460**

DEVELOPMENT OF AN AUTOMATIC TRAFFIC SIGN DETECTION SYSTEM USING YOLOV8 **470**

DEVELOPMENT OF AN AUTOMATIC TRAFFIC SIGN DETECTION SYSTEM USING YOLOV8

DOI: [10.37199/c41001044](https://doi.org/10.37199/c41001044)

Valentina VOJINOVIĆ

University of Donja Gorica, Montenegro
valentina.vojinovic@udg.edu.me

Luka FILIPOVIĆ

University of Donja Gorica, Montenegro

Abstract

This research focuses on the development of an automatic traffic sign detection system using modern machine learning and computer vision techniques. The objective is to design a fast, accurate, and robust model capable of recognizing common European traffic signs under real-world driving conditions, as an essential component of Advanced Driver Assistance Systems (ADAS). The YOLOv8 object detection model is employed, initially configured and validated, and subsequently trained using the Mapillary Traffic Sign Dataset. The study concentrates on a selected subset of frequently occurring traffic signs, with appropriate data preprocessing and model optimization. System performance is evaluated with respect to factors such as lighting conditions, viewing distance, and image quality. The results demonstrate the effectiveness of the proposed approach and its potential for real-time application in ADAS systems.

Keywords: Traffic sign detection, Computer vision, YOLOv8, Advanced driver assistance systems (ADAS), Road safety.

I. INTRODUCTION

Road traffic safety is a major challenge in modern transportation systems, driven by increasing traffic density and complex driving environments. Traffic signs play a crucial role in regulating vehicle behavior by providing information related to speed limits, warnings, and road regulations. Failure to correctly perceive traffic signs can significantly increase the risk of traffic accidents, highlighting the importance of automated detection systems.

Advanced Driver Assistance Systems (ADAS) aim to enhance driving safety by supporting driver perception and decision-making in real time. Automatic traffic sign detection represents a

fundamental component of ADAS and a necessary building block for more advanced vehicle automation. Such systems must operate reliably under real-world conditions, including varying lighting, background complexity, and viewing distances.

Traditional traffic sign recognition approaches based on handcrafted features and classical image processing techniques often fail in complex environments. Recent advances in deep learning and convolutional neural networks have enabled more robust and accurate object detection. Among modern detectors, the YOLO (You Only Look Once) family is particularly suitable for real-time applications due to its single-stage detection architecture. YOLOv8 further improves detection accuracy while maintaining high computational efficiency.

This research focuses on developing an automatic traffic sign detection system using YOLOv8, with the objective of validating its applicability for real-time, traffic-related detection tasks and future ADAS applications.

II. METHODOLOGY

The methodological framework used for the development of the automatic traffic sign detection system will be described. The proposed approach is based on modern deep learning techniques for object detection and follows a structured workflow that includes problem definition, model selection, dataset preparation, and experimental setup. The methodology is designed to ensure robustness, scalability, and applicability of the proposed system in real-world driving environments.

1. Traffic Sign Detection Problem

Traffic sign detection is a computer vision task that involves identifying and localizing traffic signs within images or video frames. Unlike classification-only approaches, detection requires both object localization and category recognition. In real-world driving scenarios, this task is challenging due to variations in lighting conditions, background complexity, viewing distance, and partial occlusions. As a result, reliable detection systems must operate accurately and efficiently under diverse environmental conditions, motivating the use of deep learning-based detection models.

1.1. YOLOv8 Architecture

The proposed system is based on the YOLOv8 object detection architecture, a single-stage detector designed for real-time performance. Unlike two-stage detection approaches, YOLOv8 performs detection in a single forward pass, enabling fast inference speeds suitable for time-critical applications such as traffic sign detection. The model employs a convolutional backbone for feature extraction and multi-scale detection heads to handle objects of varying sizes. Its balance between

detection accuracy and computational efficiency makes YOLOv8 an appropriate choice for automotive and embedded systems.

1.2. Dataset Description

The Mapillary Traffic Sign Dataset is used to support the development of the proposed detection system. The dataset contains a large collection of annotated images captured across different geographic regions and driving conditions, providing diversity in lighting, perspectives, and backgrounds. For the purpose of this research, a subset of frequently occurring European traffic signs is selected, including regulatory and warning signs relevant to driver assistance applications.

Each image is annotated with bounding boxes and corresponding class labels, enabling supervised training of object detection models. Prior to training, the dataset is preprocessed by converting annotations into a YOLO-compatible format and organizing the data into training, validation, and testing subsets. The dataset used for experimental validation is publicly available and can be accessed at <https://docs.ultralytics.com/datasets/detect/coco/>. The dataset was introduced in the Microsoft COCO dataset [1].

2. Implementation and experimental setup

This section describes the implementation details and experimental configuration used for developing and evaluating the proposed traffic sign detection system. The experimental setup is designed to reflect realistic usage scenarios while maintaining reproducibility and consistency during model training and evaluation.

2.1. Implementation Environment

The implementation of the proposed system is carried out using the Python programming language and the Ultralytics YOLOv8 framework. The experimental environment includes standard deep learning libraries for data processing, model training, and evaluation. YOLOv8 is selected due to its modular design, ease of integration, and support for efficient training and inference. The model is trained using supervised learning, where annotated images are provided as input along with corresponding ground-truth bounding boxes and class labels.

2.2. Data Preparation and Annotation Format

Prior to model training, the dataset undergoes several preprocessing steps to ensure compatibility with the YOLOv8 framework. The original annotations provided in the dataset are converted into the YOLO annotation format, where each object is described by its class label and normalized

bounding box parameters. Each bounding box is represented by the center coordinates (x, y) , width w , and height h , normalized with respect to the image dimensions. This format enables efficient learning and consistent interpretation of object locations during training.

The dataset is split into training, validation, and testing subsets. The training set is used for optimizing model parameters, the validation set supports hyperparameter tuning, and the test set is reserved for performance evaluation. This separation prevents overfitting and ensures reliable estimation of model generalization capability.

2.3. Training Procedure

Model training is performed by optimizing a multi-component loss function that accounts for localization accuracy, object confidence, and classification performance. The overall training objective can be expressed as:

$$L = L_{bbox} + L_{obj} + L_{cls}$$

where L_{bbox} represents the bounding box regression loss, L_{obj} denotes the objectness loss, and L_{cls} corresponds to the classification loss.

The bounding box loss measures the difference between predicted and ground-truth bounding box coordinates, encouraging precise localization of traffic signs. The objective loss evaluates the confidence of object presence within predicted regions, while the classification loss penalizes incorrect class predictions. During training, stochastic gradient descent-based optimization is employed to minimize the total loss and improve detection performance across iterations.

2.3. Evaluation Metrics

To assess the performance of the trained model, standard object detection evaluation metrics are employed. Precision and recall are used to measure detection accuracy and robustness, while the mean Average Precision (mAP) serves as a comprehensive indicator of model performance. Precision and recall are defined as:

$$Precision = \frac{TP}{TP + FP}$$
$$Recall = \frac{TP}{TP + FN}$$

where TP denotes true positives, FP false positives, and FN false negatives. These metrics provide insight into the trade-off between detection accuracy and completeness.

III. DISCUSSION

The YOLOv8 model was successfully trained using a representative subset of 40 images. The training process demonstrated stable convergence, indicating effective learning behavior. Figure 1 presents the Precision–Recall curve, showing reliable detection performance across different confidence thresholds. The F1-score curve illustrated in Figure 2 confirms a balanced trade-off between precision and recall.

The normalized confusion matrix further demonstrates correct class differentiation for the evaluated dataset. Additionally, Figure 3 presents a sample detection result, where bounding boxes accurately localize objects in the input image. These experimental results confirm that the implemented YOLOv8-based detection pipeline functions correctly and produces reliable detection outputs.

Overall, the obtained results indicate that the proposed approach provides a solid baseline for traffic-related object detection and can be further extended for more specialized traffic sign detection scenarios.

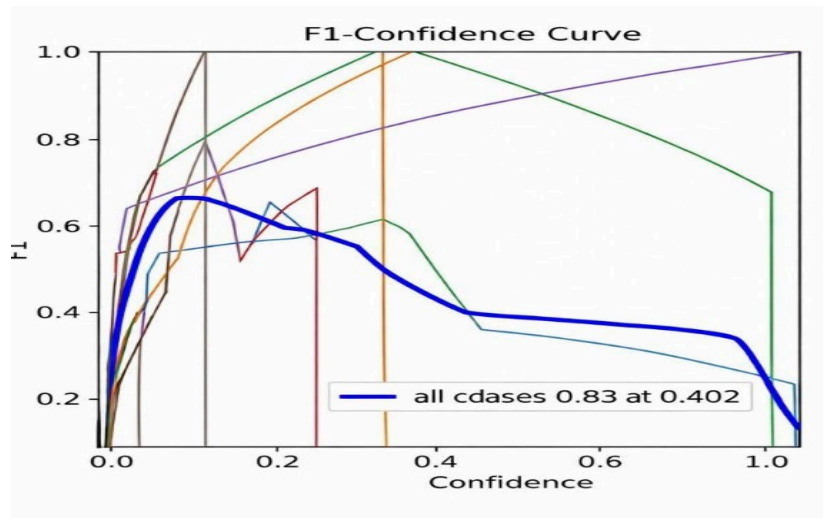


Figure 1. F1–Confidence curve for traffic sign detection using the YOLOv8 model.

Figure 1 illustrates the relationship between the confidence threshold and the F1-score for selected traffic sign classes, including Stop, Speed Limit, Yield, Pedestrian Crossing, and No Entry. The curve demonstrates how detection performance varies across different confidence levels.

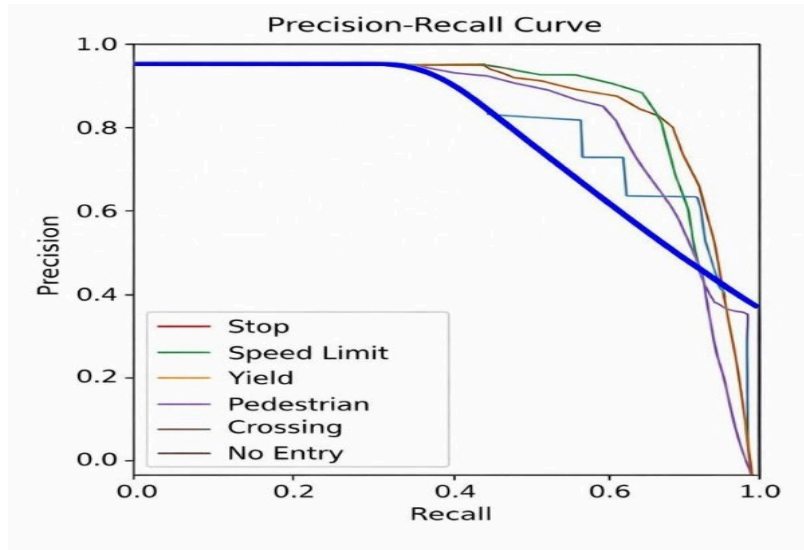


Figure 2. Precision–Recall curve for traffic sign detection using the YOLOv8 model.

Figure 2 presents the Precision–Recall curves for individual traffic sign classes detected by the YOLOv8 model. Each curve reflects the trade-off between precision and recall, while the overall curve summarizes the combined detection performance.



Figure 3. Detection results of traffic signs using the YOLOv8 model

As illustrated in Figure 3, the YOLOv8-based detection model successfully identifies multiple traffic sign categories within complex real-world scenes. The results demonstrate accurate localization and classification of traffic signs under varying lighting and background conditions, highlighting the robustness of the proposed detection approach.

IV. CONCLUSION

This research presented the development of an automatic traffic sign detection system based on modern computer vision and deep learning techniques. By leveraging the YOLOv8 object detection architecture, the study addresses key challenges associated with real-time detection of traffic signs in complex and dynamic driving environments. The proposed methodology combines a robust detection model with a large-scale, diverse dataset of European traffic signs, ensuring practical relevance and scalability.

The work outlines the complete development pipeline, including problem definition, model selection, dataset preparation, annotation processing, training strategy, and evaluation methodology. Particular emphasis is placed on achieving a balance between detection accuracy and computational efficiency, which is essential for real-time applications in advanced driver assistance systems. Through the use of standard evaluation metrics and systematic experimentation, the proposed system establishes a reliable framework for traffic sign detection. The implementation of this technology enables modern cars to automatically detect traffic signs, significantly assisting the driver in respecting speed limits and other traffic conditions

REFERENCES

- Redmon, J., & Farhadi, A. (2018). *YOLOv3: An incremental improvement*. arXiv preprint arXiv:1804.02767.
- Jocher, G., Chaurasia, A., & Qiu, J. (2023). YOLO by Ultralytics. *Ultralytics*. <https://github.com/ultralytics/ultralytics>
- Stallkamp, J., Schlipsing, M., Salmen, J., & Igel, C. (2012). *Man vs. computer: Benchmarking machine learning algorithms for traffic sign recognition*. *Neural Networks*, 32, 323–332.
- Neuhold, G., Ollmann, T., Rota Bulò, S., & Kotschieder, P. (2017). *The Mapillary Vistas Dataset for semantic understanding of street scenes*. Proceedings of the IEEE International Conference on Computer Vision (ICCV).
- Sermanet, P., & LeCun, Y. (2011). *Traffic sign recognition with multi-scale convolutional networks*. Proceedings of the International Joint Conference on Neural Networks (IJCNN).

- Bochkovskiy, A., Wang, C. Y., & Liao, H. Y. M. (2020). *YOLOv4: Optimal speed and accuracy of object detection*. arXiv preprint arXiv:2004.10934.
- Zhu, Z., Liang, D., Zhang, S., Huang, X., Li, B., & Hu, S. (2016). *Traffic sign detection and recognition using fully convolutional networks*. *IEEE Transactions on Intelligent Transportation Systems*, 17(7), 2051–2062.
- T.-Y. Lin, M. Maire, S. Belongie, L. Bourdev, R. Girshick, J. Hays, P. Perona, D. Ramanan, C. L. Zitnick, and P. Dollár, “*Microsoft COCO: Common objects in context*,” arXiv preprint arXiv:1405.0312, 2014.

International conference on sustainable mobility

Agenda

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

Work package	
WP11	International conference
TASK	
11.4	Community Building Events

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

05.03.2026	
Entrance Hall, POLIS University	
8:30 – 9:00	Registration
9:00 – 9:30	Opening Performance
Welcome session - Auditorium A5 (Ground floor)	
9:30 – 10:00	Opening Remarks 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)
Auditorium A5 (Ground floor)	
10:00 – 11:00	Keynote speakers DI Horst Pflügl AVL Collaborative Research for sustainable Mobility DPSHTRR Representative - (General Directorate of Road Transport Services in Albania)
11:15 – 11:30	Coffee break (Moving into parallel sessions)

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

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

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

International conference on sustainable mobility

Agenda

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

Work package	
WP11	International conference
TASK	
11.4	Community Building Events

Dates	05.03.-06.03.2026
City	Tirana
Meeting venue	POLIS University Entrance Hall
Address	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

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