

Innovate today for the mobility of tomorrow

VII. E-MOBILITY FORUM

FUTURE MOBILITY & ENERGY
SMART INFRASTRUCTURE
URBAN PUBLIC REALM
ACADEMY - SIM CHALLENGE

BELGRADE - FACULTY OF MECHANICAL ENGINEERING
16-17/10/2024



eit Urban Mobility
RIS HUB SERBIA
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Ministry of Science, Technological
Development and Innovation
Ministry of Construction, Transport
and Infrastructure

VII. E-MOBILITY FORUM



Poštovani,

E-MOBILITY FORUM je godišnji događaj koji se fokusira na izazove i inovativna tehnološka rešenja iz oblasti automotiva i urbane mobilnosti integrirajući akademiju, industriju i gradove.

VII medjunarodni E-Mobility Forum organizuju zajedno **NAAEV (Nacionalna Asocijacija Autonomnih i Električnih Vozila) i Mašinski fakultet**, uz saradnju i podršku Elektrotehničkog i Saobraćajnog fakulteta Univerziteta u Beogradu, (**16/17.10 2024., zgrada Mašinskog fakulteta**). Forum je podržan od strane MGSI/Ministarstva gradjevinarstva, saobraćaja i infrastrukture i NITRA/Ministarstva nauke, tehnološkog razvoja i inovacija.

Mašinski Fakultet Univerziteta u Beogradu predstavlja vodeću naučno-istraživačku ustanovu u Srbiji, u širokoj oblasti mašinskog inženjerstva. Kao regionalni Hub "EIT UM"-a (European Institute of Innovation and Technology-Urban Mobility) i partner-član u organizacijama finansiranim u okviru programa Horizon Europe, "CCAM" ("Connected, Cooperative & Automated Mobility") i "2ZERO", NAAEV je zajedno sa Mašinskim fakultetom fokus ovog Foruma usmerio na teme iz oblasti "Buduća mobilnost & Energija", "Mobilnost & Infrastruktura", "Javni urbani prostor", i "Akademija-Challenge", koje će prezentovati više od dvadeset referentnih stručnjaka iz Srbije, Evrope, Amerike i Azije.

Specijalan deo u okviru drugog dana Foruma posvećen je prezentaciji nagradjenih inovativnih ideja, odnosno završnom izboru i proglašenju pobjednika četvoromesečnog takmičenja studentskih timova, **SIM-Challenge / Student Innovative Mobility Challenge (17.05.2024. – 20.09.2024.)**. Pet najboljih studentskih ideja biće finansijski nagradjene a pobjednički tim uz finansijsku nagradu u iznosu od 300.000rsd. dobija mentorstvo u daljem razvoju projektne ideje, podršku u otvaranju startup-a kao i mogućnost uključenja u inovativne pozive EIT UM-a, CCAM-a i 2ZERO. Takođe, pobjedničkom timu biće finansirano putovanje i prisustvo događaju TMWC / Tomorrow Mobility World Congress 2024, koji se održava u Barceloni u periodu 5-7 Novembar 2024 godine.

Posebnu zahvalnost za uspeh prošlogodišnjeg Foruma dugujemo sponzorima kojima će se u okviru ovogodišnjeg dogadjaja obratiti i zahvaliti članovi dva prvonačuđena tima sa SIM-Challenge-a 2023.

Biće nam izuzetno zadovoljstvo i čast da Vaša cenjena kompanija svojim učešćem da doprinos uspehu ovog događaja. Shodno gornjem molimo Vas da nam date kontakt podatke osobe sa kojom bi se koordinirale dalje aktivnosti.

NAAEV
Ivan Vulović, Predsednik UO


Mašinski Fakultet, Univerzitet Beograd
Prof. dr Vladimir Popović, Dekan


Dear all,

The **E-MOBILITY FORUM** is an annual event focusing on challenges and innovative technological solutions in the automotive and urban mobility sectors, integrating academia, industry, and cities.

The VII International E-Mobility Forum is jointly organized by **NAAEV (National Association of Autonomous and Electric Vehicles) and the Faculty of Mechanical Engineering**, in collaboration with the Faculty of Electrical Engineering and the Faculty of Traffic Engineering of the University of Belgrade, (**October 16/17, 2024, Faculty of Mechanical Engineering building**). The Forum is supported by the MGSI (Ministry of Construction, Transport, and Infrastructure) and NITRA (Ministry of Science, Technological Development, and Innovation).

The Faculty of Mechanical Engineering of the University of Belgrade is the leading research institution in Serbia in the broad field of mechanical engineering. As a regional Hub of the "EIT UM" (European Institute of Innovation and Technology - Urban Mobility) and a partner in organizations funded under the Horizon Europe program, "CCAM" ("Connected, Cooperative & Automated Mobility") and "2ZERO," NAAEV, together with the Faculty of Mechanical Engineering, has directed the focus of this Forum on topics related to "Future Mobility & Energy", "Mobility & Infrastructure", "Public Urban Space", and "Academia-Challenge", which will be presented by more than twenty expert speakers from Serbia, Europe, America, and Asia.

A special session on the second day of the Forum is dedicated to presenting award-winning innovative ideas, namely the final selection and announcement of the winners of the four-month competition of student teams, **SIM-Challenge / Student Innovative Mobility Challenge (May 17, 2024 - September 20, 2024)**. The top five student ideas will receive financial awards, and the winning team, along with a financial prize of 300,000 RSD, will receive mentoring in further project development, support in starting a startup, and the opportunity to participate in innovative calls from EIT UM, CCAM, and 2ZERO. Additionally, the winning team will be funded for travel and attendance at the TMWC / Tomorrow Mobility World Congress 2024 event, held in Barcelona from November 5th to 7th, 2024.

We extend our special thanks for the success of last year's Forum to the sponsors, to whom the members of the two first-place teams from the 2023 SIM-Challenge will also express gratitude during this year's event.

It would be our great pleasure and honor to have your esteemed company contribute to the success of this event through participation. According to the above, please provide us with the contact details of the person with whom further activities would be coordinated.

NAAEV
Ivan Vulović, Chairman of the board


Faculty of Mechanical Engineering, University of Belgrade
Prof. dr Vladimir Popović, Dean


Transformaciju buduće mobilnosti i energetike pokreće identifikacija ključnih tehnoloških trendova koji oblikuju ukupan sektor transporta. Osnovni elementi ove transformacije uključuju elektrifikaciju vozila, napredak u tehnologijama baterija, usvajanje alternativnih goriva, povezana i autonomna vozila kao i pojavu mobilnosti kao usluge.

U različitim kontekstima, digitalne tehnologije igraju ključnu ulogu u procesu revolucije mobilnosti i energije, omogućavajući efikasnije rute, optimizaciju protoka saobraćaja i unapređenje korisničkog iskustva. Vlade, transportne vlasti i pružaoci usluga prioritet daju mobilnosti na zahtev, pametnim sistemima za optimizaciju kapaciteta i razvoju mobilnih resursa uz implementaciju novih finansijskih modela koji podržavaju povezivanje infrastrukture.

Postoji značajan potencijal u okviru inovativnih rešenja u oblastima buduće mobilnosti i energetike. Saradnja i razmena znanja, pre svega unutar regionalnog dijaloga pruža prilike za deljenje najboljih praksi i unapređenje inicijativa održive mobilnosti i energetike.

Rešavanje izazova mobilnosti u drumskom, vazdušnom i vodenom transportu u javnom kao i privatnom sektoru, zahteva fokus na pronalaženju novih, inovativnih rešenja u cilju unapređenja efikasnosti, bezbednosti i održivosti.

Pitanje energetske tranzicije u transportu usmereno je ka rešavanju globalnog izazova smanjenja emisija gasova sa efektom staklene baštice što podrazumeva podsticaje usmerene na usvajanje elektrifikaciju vozila, napredak u tehnologijama baterija, korišćenje alternativnih goriva i drugih održivih praksi kako bi se postigli ciljevi održivosti.

The transformation of future mobility and energy is driven by identifying key technological trends that shape the overall transportation sector. Core elements of this transformation include vehicle electrification, advancements in battery technologies, adoption of alternative fuels, connected and autonomous vehicles, as well as the emergence of mobility as a service.

In various contexts, digital technologies play a crucial role in the mobility and energy revolution process, enabling more efficient routes, traffic flow optimization, and enhancing user experience. Governments, transportation authorities, and service providers prioritize on-demand mobility, smart capacity optimization systems, and mobile resource development, along with implementing new financial models supporting infrastructure connectivity.

There is significant potential within innovative solutions in the fields of future mobility and energy. Collaboration and knowledge exchange, primarily within regional dialogues, provide opportunities for sharing best practices and enhancing sustainable mobility and energy initiatives. Addressing mobility challenges in road, air, and water transportation in both public and private sectors requires a focus on finding new, innovative solutions to enhance efficiency, safety, and sustainability.

The question of energy transition in transportation is focused on addressing the global challenge of reducing greenhouse gas emissions, involving incentives aimed at adopting vehicle electrification, advancements in battery technologies, utilization of alternative fuels, and other sustainable practices to achieve sustainability goals.



Kreatori razvoja pametne transportne infrastrukture koriste napredne tehnologije za autonomno prikupljanje podataka, njihovu obradu i dinamički odgovor. Ova pametna infrastruktura se bez problema prilagođava promenama uslova, obezbeđujući efikasne, održive i sigurne transportne sisteme.

Aktivno učešće u razvoju pametne transportne infrastrukture pruža značajne mogućnosti za inovacije i saradnju. Regionalne inicijative omogućavaju efikasnu razmenu znanja i usvajanje najboljih praksi, što značajno unapređuje razvoj pametne infrastrukture u transportnom sektoru.

Pametna transportna infrastruktura integriše ponašanje svih "korisnika" kako bi se minimizirali gubici i održao visoko kvalitetan snabdevački lanac. Na primer, automatizovane energetske mreže koriste pametnu tehnologiju za upravljanje uređajima i obezbeđenje efikasne distribucije. Pametne zgrade automatizuju interne procese poput grejanja i bezbednosti, što doprinosi efikasnosti i sigurnosti. Javna infrastruktura koristeći elektronske uređaje za prikupljanje i analizu podataka optimizuje performanse i pouzdanost sistema.

Ovde se fokus postavlja na korišćenje pametnih tehnologija za unapređenje bezbednosti, efikasnosti i održivosti u različitim oblastima transporta. Inteligentni sistemi upravljanja saobraćajem i automatizovani procesi održavanja oblikuju budućnost transporta.

S obzirom na rastuću potražnju za održivom i pouzdanom transportnom infrastrukturom, posvećenost prihvatanju pametnih rešenja usmerena je na rešavanje sadašnjih i budućih izazova, osiguravajući bezbednu mobilnost i povezanost za sve.

Developers of smart transport infrastructure utilize advanced technologies for autonomously gathering data, processing it, and dynamically responding. This intelligent infrastructure seamlessly adapts to changing conditions, ensuring efficient, sustainable, and safe transportation systems.

Active participation in the development of smart transport infrastructure offers significant opportunities for innovation and collaboration. Regional initiatives facilitate efficient knowledge exchange and adoption of best practices, significantly enhancing the development of smart infrastructure in the transportation sector. Smart transport infrastructure integrates the behavior of all "users" to minimize losses and maintain a high-quality supply chain. For example, automated energy grids utilize smart technology to manage devices and ensure efficient distribution. Smart buildings automate internal processes such as heating and security, contributing to efficiency and safety. Public infrastructure, using electronic devices for data collection and analysis, optimizes system performance and reliability.

Here, the focus is on using smart technologies to enhance safety, efficiency, and sustainability in various transport areas. Intelligent traffic management systems and automated maintenance processes shape the future of transportation.

With the growing demand for sustainable and reliable transport infrastructure, commitment to embracing smart solutions is directed towards addressing present and future challenges, ensuring safe mobility and connectivity for all.



Rešenja u transportu predstavljaju kičmu gradova, pružajući prostor za okupljanje, druženje i kulturni izraz. Ona služe kao kanal kroz koji građani stupaju u interakciju sa svojim urbanim okruženjem, podstičući dinamičan i raznovrstan društveni okvir.

U urbanom planiranju, razvoj i očuvanje transportne infrastrukture ima ključnu ulogu u unapređenju kvaliteta života svih stanovnika. Dobro održavane saobraćajnice živahni i čvorišta javnog prevoza, bezbedne pešačke i biciklističke staze, doprinose stvaranju gradova koji su inkluzivniji i prijatniji za život.

Integracija prirode u infrastrukturu transporta takođe je od suštinskog značaja za unapređenje blagostanja stanovnika u gradovima. Zelene površine poput javnih bašti, trgova i šetališta punih drvoreda, nude oaze mira usred gradske vreve, promovišući mentalno i fizičko zdravlje građana.

Pristupačnost i inkluzivnost su osnovni principi u dizajnu transportne infrastrukture. Pažljivo planirani saobraćajni sistemi prilagođeni osobama sa smanjenom pokretljivošću obezbeđuju da svi građani mogu u potpunosti da uživaju u urbanom životu bez prepreka ili diskriminacije.

Promovisanje održivih načina transporta, poput pešačenja, vožnje bicikla i javnog prevoza, podstiče dinamičniji i ekološki prihvatljiviji urbani pejzaž. Bezbedne biciklističke staze, efikasan javni prevoz i dobro dizajnirane pešačke zone podstiču aktivnu mobilnost i smanjuju zavisnost od automobila.

Na kraju, participativno i saradničko upravljanje infrastrukturom u transportu uključuje stanovnike, lokalne kompanije i gradske vlasti u procesu zajedničkog planiranja i donošenja odluka.

Transport solutions form the backbone of cities, providing spaces for gathering, socializing, and cultural expression. They serve as channels through which citizens interact with their urban environment, fostering a dynamic and diverse social framework.

In urban planning, the development and preservation of transport infrastructure play a crucial role in enhancing the quality of life for all residents. Well-maintained roadways, vibrant public transit nodes, safe pedestrian and cycling paths contribute to creating cities that are more inclusive and livable.

Integrating nature into transport infrastructure is also essential for enhancing the well-being of urban residents. Green spaces such as public gardens, squares, and tree-lined promenades offer havens of peace amidst the urban bustle, promoting the mental and physical health of citizens.

Accessibility and inclusivity are fundamental principles in the design of transport infrastructure. Carefully planned transportation systems tailored to individuals with reduced mobility ensure that all citizens can fully enjoy urban life without barriers or discrimination.

Promoting sustainable modes of transportation, such as walking, cycling, and public transit, encourages a more dynamic and environmentally friendly urban landscape. Safe cycling lanes, efficient public transport, and well-designed pedestrian areas foster active mobility and reduce dependence on cars.

Ultimately, participatory and collaborative governance of transport infrastructure involves residents, local businesses, and municipal authorities in the process of collective planning and decision-making.



DAN 2 / DAY 2

AKADEMIA - SIM CHALLENGE / ACADEMY - SIM CHALLENGE

Dobrodošli u svet inovacija i mladalačke energije! Naš "Student Innovative Mobility Challenge" predstavlja ne samo izazov, već i priliku za studente da istraže granice mogućnosti u oblasti mobilnosti.

Prošle godine smo započeli ovu inspirativnu avanturu sa nekoliko vodećih fakulteta u Beogradu, a ove godine širimo krug i otvaramo vrata partnerstva širom zemlje. Ovaj izazov predstavlja pokretač mladim umovima ka stvaranju inovativnih rešenja koja će oblikovati buduću mobilnost.

Ponosni smo na dva prvonagradjena tima iz prošlogodišnjeg SIM-Challenge-a koja su nastavila put ka osnivanju sopstvenog startapa, to pokazuje snagu i potencijal ovog izazova. Kroz dalje aktivnosti mi ćemo podržavati mlađe talente na njihovom putu ka uspehu i podsticati ih da sanjaju velike snove i ostvaruju svoje ideje.

Vaša podrška ima suštinski značaj za razvoj novih generacija mlađih lidera i inovatora.

Zato nam se pridružite u ovom uzbudljivom putovanju ka novoj mobilnosti !

SIM-C AWARDED TEAMS



2023 SIM-C WINNER TEAM = NEWGROUP (NAVBLIND)

UNIVERSITY OF BELGRADE
SCHOOL OF ELECTRICAL
ENGINEERING

UNIVERSITY OF BELGRADE
Faculty of Architecture

Kristina Stamenković (AF)
Mihailo Žarković (ETF)
Pavle Zečević (ETF)
Slobodan Isaković (ETF)



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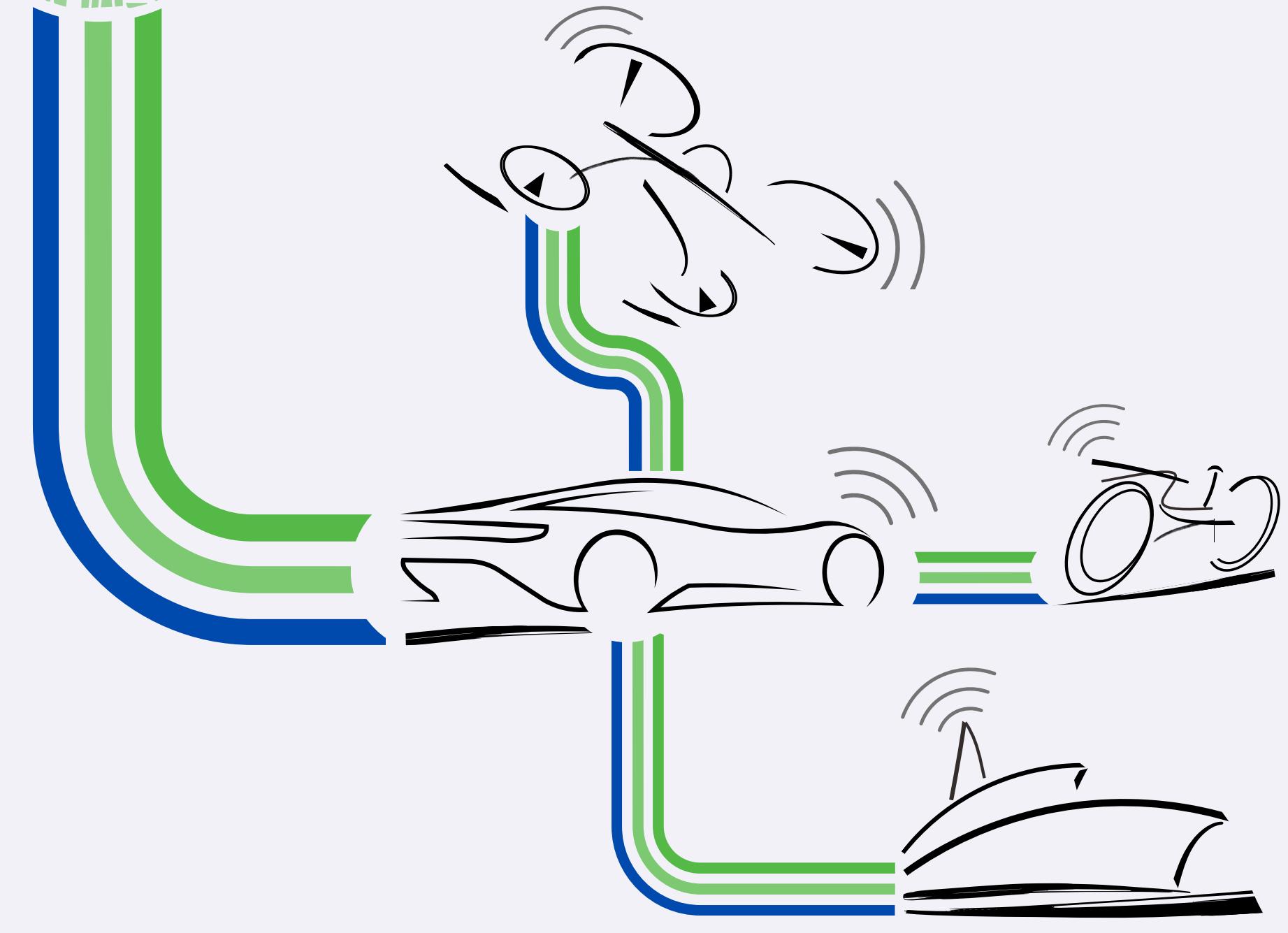
FACULTY OF MECHANICAL ENGINEERING - BELGRADE
FINAL - 17/10/2024

SIM-CHALLENGE 2024

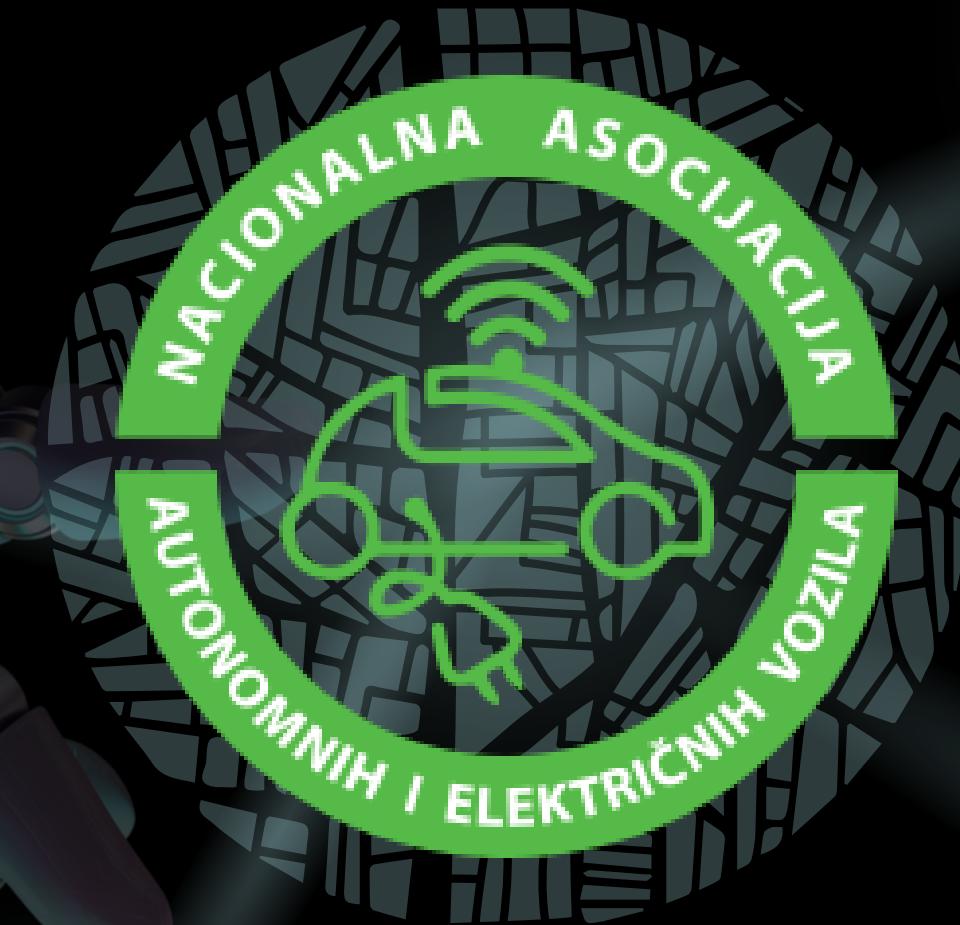
STUDENT INNOVATIVE MOBILITY CHALLENGE

PRIJAVI INOVATIVNA REŠENJA ZA ODGOVORNU I ODRŽIVU MOBILNOST DO 20/09/2024

BUDITE DEO GRADITELJA NOVE BUDUĆNOSTI.



KONTAKT / CONTACT



www.naev.rs



info@naev.rs