



Expression of interest

Contact details

Country	TURKEY
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Short description of the organisation

Provide a short description of the equipment available, the relations with the industry, the profile of the main researchers

Karsan has been producing commercial vehicles with 100 percent local capital since 1981. Throughout this journey, Karsan has produced for the world's automotive giants and developed its own branded products that stand out for their originality in the field of public transportation. As a result, Karsan has become a rising brand in Turkey.

Karsan with its business partnerships and game-changing innovations, it today operates in more than 40 different countries around the world. Boasting an innovative brand DNA and a mission to provide sustainable solutions, Karsan moves forward with full momentum and expands its product range continuously by integrating innovations in electric vehicle technology that is shaping the future. Our electric development vision, e-Volution, we are taking firm steps towards our goal of positioning the Karsan brand in the top 5 in Europe.

Karsan, one of the leading companies in e-mobility solutions, has also started the hydrogen era, adding the hydrogen-fueled vehicle to its range of electric and autonomous products, it takes electric mobility to another dimension with more than 160 engineers in the R&D department.

Specific skills related to the project

Indicate the specific skills and competence in relation with HORIZON-CL5-2024-D6-01-06: Optimising multimodal network and traffic management, harnessing data from infrastructures, mobility of passengers and freight transport

KARSAN can:

- Effectively use AI-based techniques for sustainable mobility, especially in autonomous systems.
- Perform optimization algorithms to bring sub-optimal solutions for transportation networks.
- Use its wide range of electric vehicles equipped with the desired high-technology sensors in urban and rural traffic.
- Adapt the different types of vehicles into a simulation environment.
- Analyze energy consumption, used time, and key information from the vehicles.



- *Propose novel approaches in the field of algorithm development to make the process better or fast.*
- *Draw a general picture of the public transportation network in many places via a wide market network of KARSAN.*
- *Build the ML models for specific tasks according to given data.*

KARSAN has also a dedicated AV team that is responsible for autonomous bus software and system stacks.

Proposed activities for the project

Indicate which activities you would like to implement during the project

KARSAN can:

- *Implement optimization techniques to improve the performance of the network (time, cost, etc.) according to the modeled problem(s).*
- *Investigate the literature to bring up-to-date algorithms for comparing their performance in last-mile deliveries.*
- *Support the process by implementing scenarios of the real traffic via a simulation program.*
- *Test the developed algorithms in closed-area with vehicles.*
- *Use the vehicle in the traffic to evaluate the management system to be presented.*
- *Provide whole technology related to vehicles used in public transportation.*
- *Support the development of the traffic management system via software engineers.*

KARSAN can also open to use its road inside the factory for testing and validation of the vehicles.

References

Previous research project

Project acronym / starting date	Main objectives	Main activities	Role in the project
Publication	Grey Wolf Optimizer to the Hyperparameters Optimization of Convolutional Neural Network with Several Activation Functions	Algorithm development	First Author
Publication	Modified forensic-based investigation algorithm for global optimization	Algorithm development	First Author
Publication	A hybrid optimizer based on backtracking search and differential evolution for continuous optimization	Algorithm development	First Author
Publication	A comparative study of the state-of-the-art algorithms on multi-objective problems using performance metrics	Algorithm development	First Author