

THE BEST

IN THE ENGINEERING WORLD

No.4

December 2023

Introducing the best teams in the field of engineering in various world competitions



THE BEST

No.4

December 2023

IN THE ENGINEERING WORLD

Introducing the best teams in the field of engineering in various world competitions



Introduction FIRA Autonomous Cars Challenge





FIRA RoboWorld Cup

The Federation of International Sports Association (FIRA) – founded by Prof. Jong-Hwan Kim, KAIST, Korea in 1996 – is the oldest robot soccer competition in the world. From humble beginnings, FIRA has grown to a major robotics competition with the goal using sports as benchmark problems for state of the art research in robotics and other related areas. FIRA also includes the FIRA Air competition for autonomous flying robots, FIRA Challenge for robotics research with great societal benefits such as urban search and rescue robots, and FIRA Youth for the next generation of researchers. In 2018, FIRA RoboWorld Cup was held in Tai Chung, Taiwan and attracted more than 1,200 participants. And in 2019 The FIRA RoboWorld Cup was held in Changwon, South Korea and the year after, due to the covid-19 situation in the world, FIRA RoboWorld Cup had multiple events online.

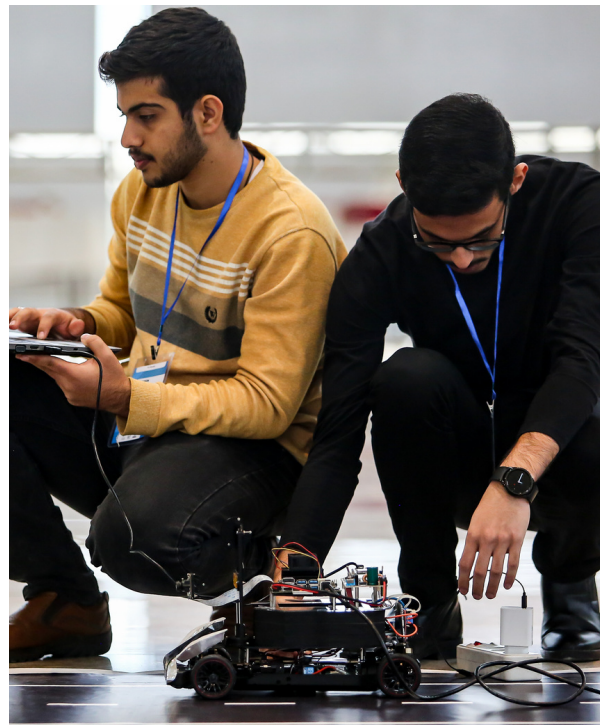


FIRA Autonomous Cars Challenge

The focus of the FIRA Autonomous Cars competition is encouraging researchers to develop self-driving cars. In FIRA Autonomous Cars, two environments are designed for cars to compete against each other. The first environment is a racing circuit and the second one is an urban environment. Each environment has its own score and the total score of competitors will be the sum of both scores.

There are two stages in the competition, preliminary and final. Depending on an achieved score in the preliminary stage, some teams will be qualified for the final stage. Achieved scores during the preliminary stage will be reset to zero for the final stage. The order of participation in a stage is decided by a draw, a day before the start of the competition. Teams that are not present during the draw, will start the stage first, using another draw by present teams.

This competition consisted of two-part, each part has its own scoring model and the total score will be the sum of the scores each team has obtained in both parts. The first part is called "Autonomous Race" and in this part, each car has to complete a race track autonomously one or more times depending on the stage. The second part is called "Autonomous Urban Driving" and in this part, each car should complete the specified task such as navigation according to road signs. Both parts are introduced in more detail in the next sections of this document.



“

Learning the
technologies is
a need for the
future

Soroush Sadeghnejad

Prof. Soroush Sadeghnejad

FIRA Vice President

“

FIRA is always Pioneer
in holding competitions
in the field of
Autonomous Vehicles
and creating a platform
for the synergy of
researchers in this field.

a. Zarif

Amirmohammad Zarif

CEO of AVIS Engine Group

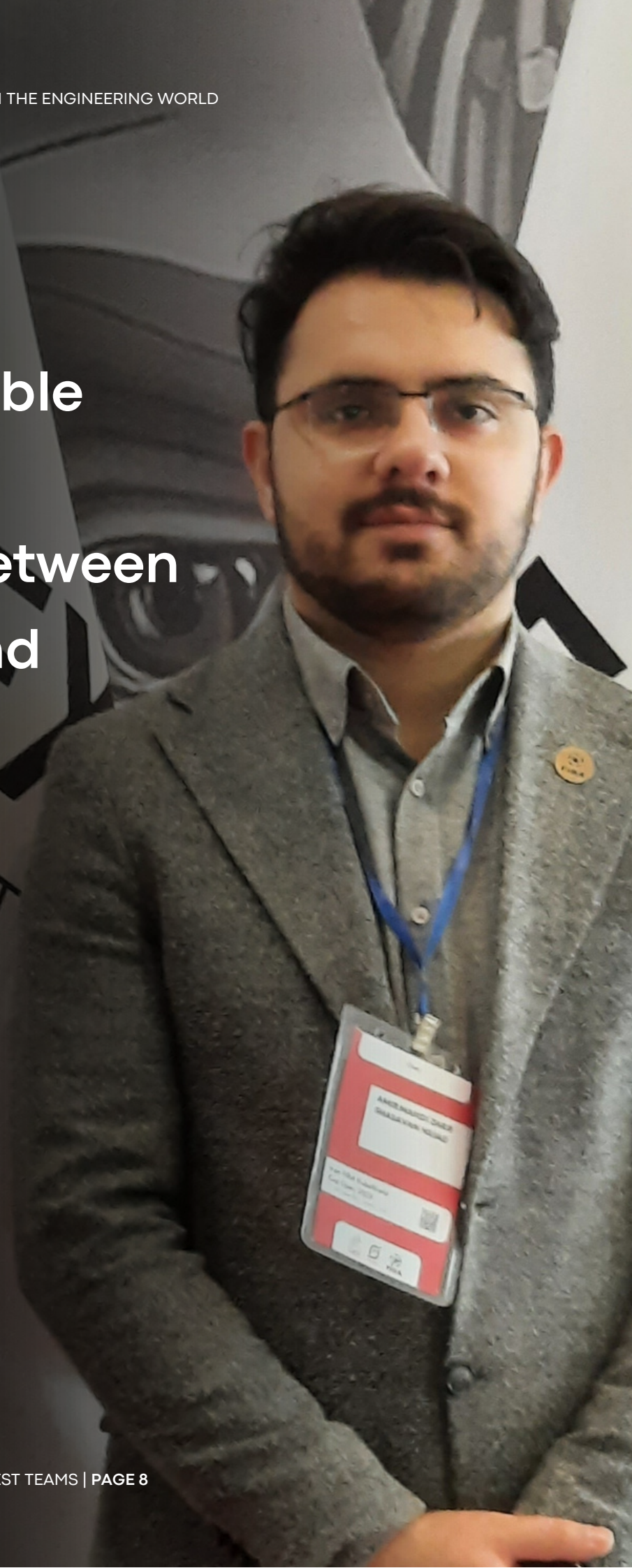
“

FIRA is a suitable platform for networking between developers and investors.

Zarif

Amirmahdi Zarif

President of International AVIS
Researchers Association (IARA)



Introducing the top teams



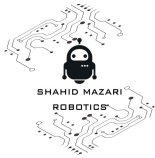
Hades



Logo	Affiliation
	Hades Robotics Team



SHAHID MAZARI



Logo	Affiliation
	The central and popular headquarters of Shahid Mazari from Afghanistan


Black Tear



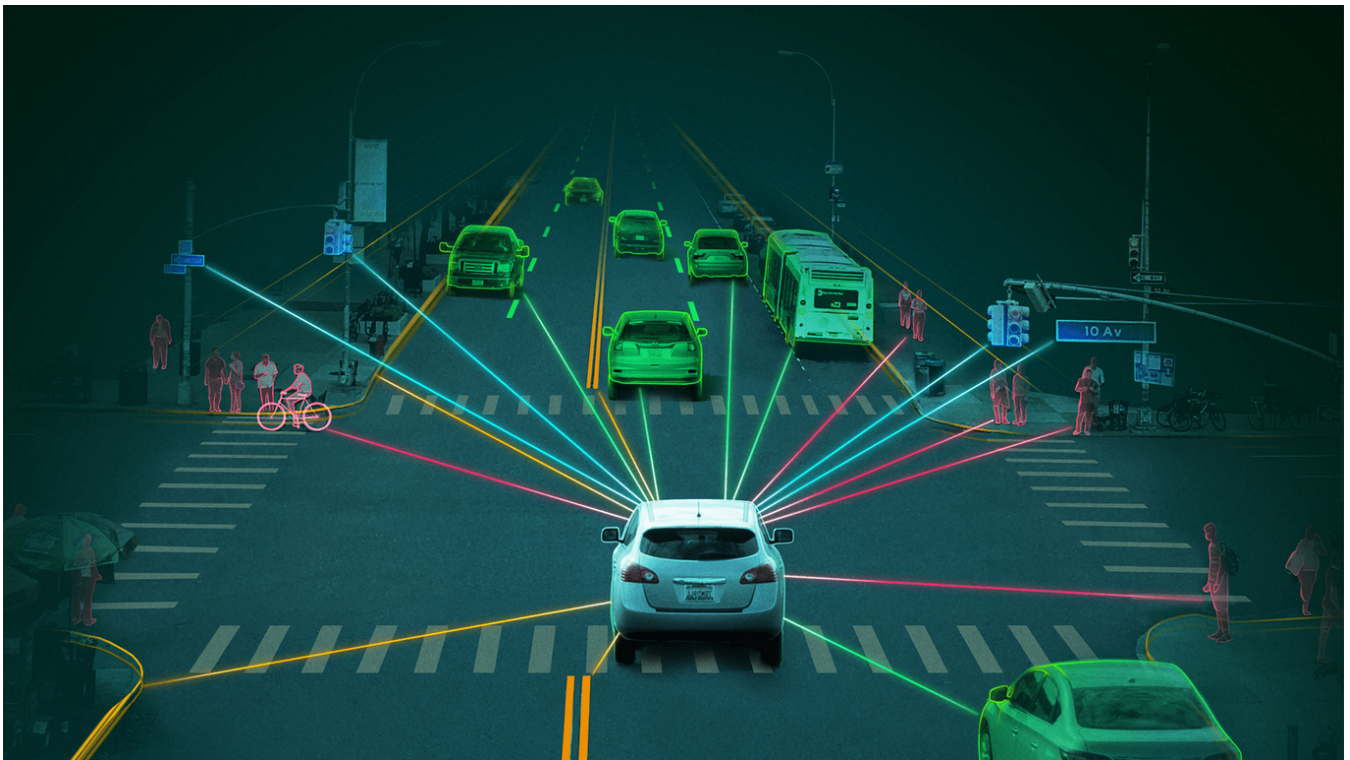
Logo	Affiliation
	 <p>Ako Robotics Intelligence - Science and Research Branch, Islamic Azad University, Tehran</p>


SRBIAU



Logo	Affiliation
	Islamic Azad University, Science and Research Branch


MCAC



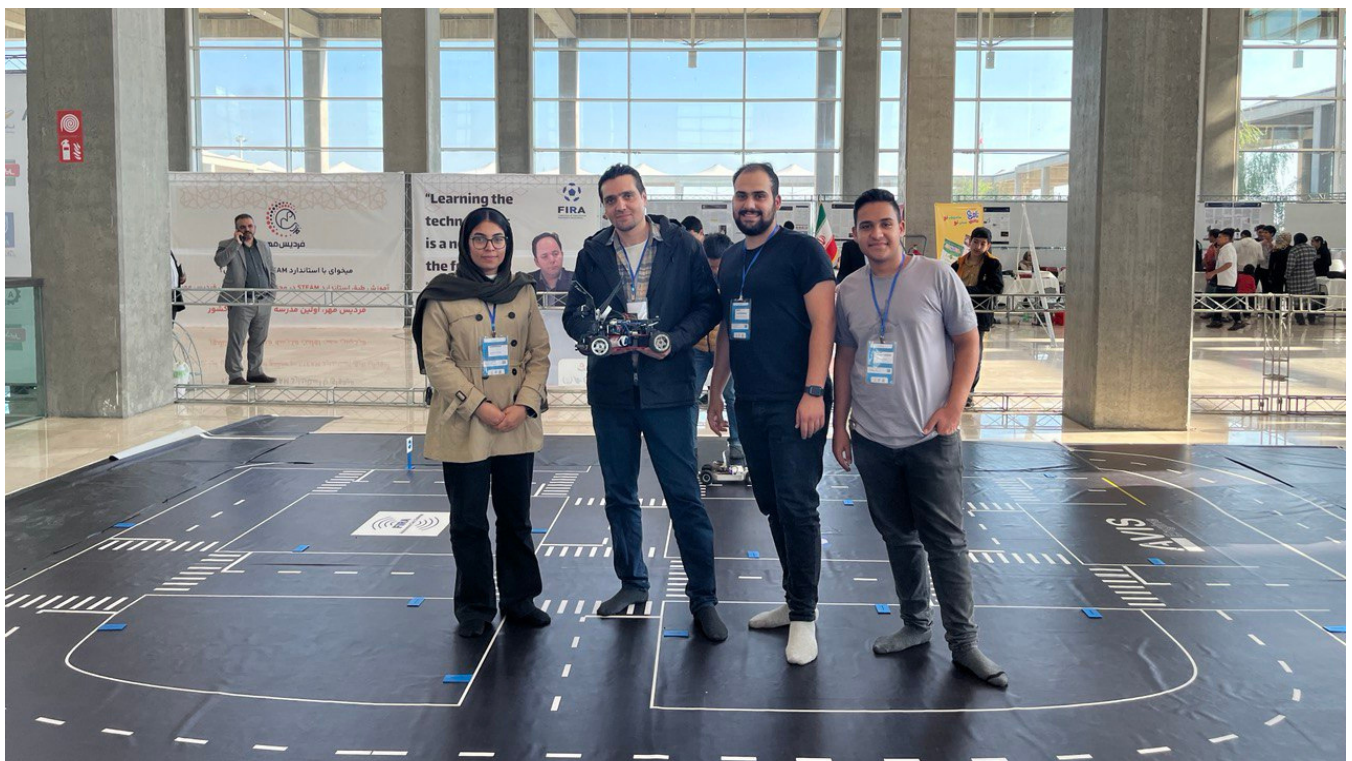
Logo	Affiliation
	Amirkabir University of Technology


YOUZ



Logo	Affiliation
	Islamic Azad University Qazvin Branch


ACE



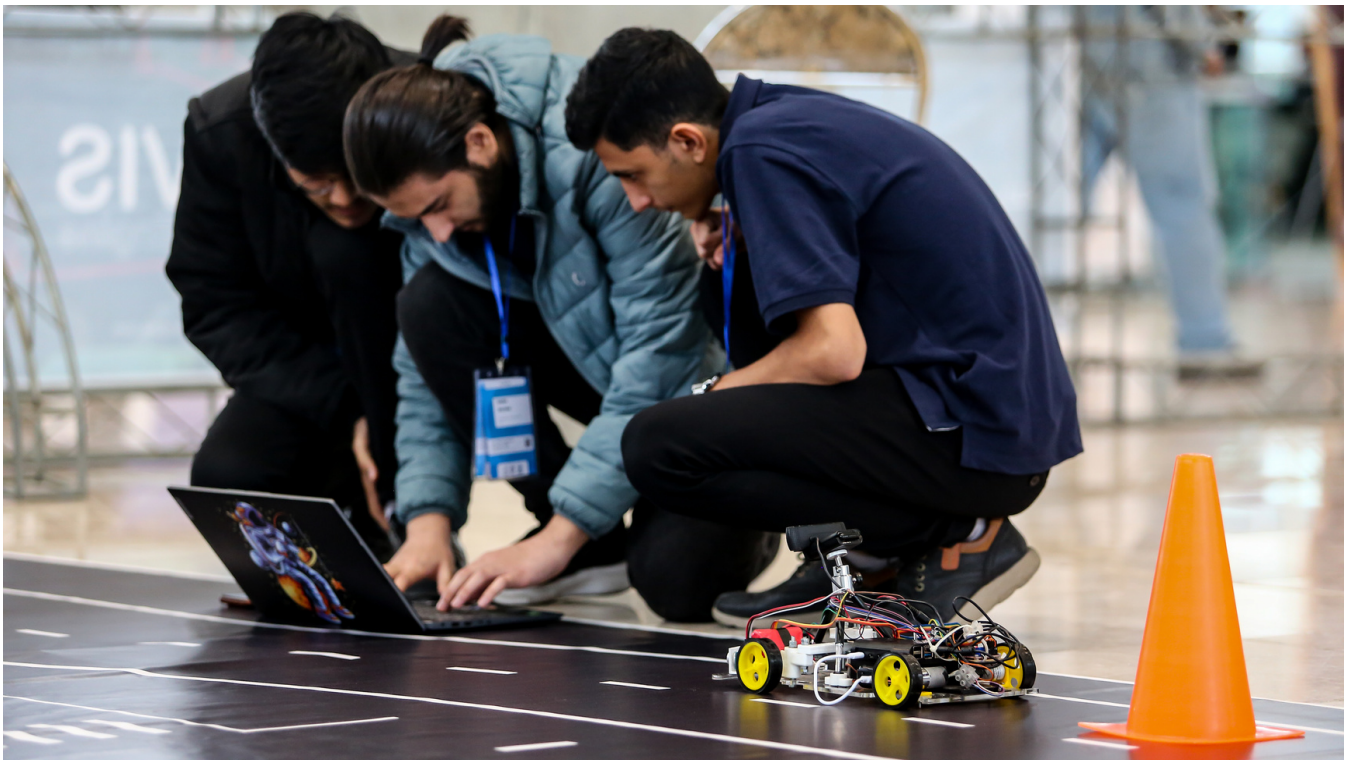
Logo	Affiliation
 The logo for ACE, featuring the lowercase letters "ace" above a stylized robot head with two large eyes and a red horizontal line across the middle. Below the robot head, the text "Manufacturer of all kinds of robots" is written in a small font.	Islamic Azad University Kerman Branch

Bir Robotic



Logo	Affiliation
	Bir Robotic Company


AI.py



Logo	Affiliation
 The logo for AI.PY features a stylized code symbol (</>) inside a circle, surrounded by colorful dots in yellow, blue, and purple. Below the circle, the text "AI.PY" is written in a bold, black, sans-serif font.	Amir Kabir high school


Robotex Iran



Logo	Affiliation
	Robotex Iran

KIAU Robo Team



Logo	Affiliation
	Islamic Azad University Karaj Branch

IRO



Logo

Affiliation



Arak University of Technology


Besat Programmers



Logo	Affiliation
	besat high school

FIRA International Academy



Logo	Affiliation
	FIRA International Academy

Introduction to AVIS Engine

The AVIS Engine is a fast and robust autonomous vehicle simulator that satisfies the needs of development and implementation of autonomous vehicles. It enables developers to develop their algorithms and consider a wide range of real-world cases and challenges.

The Simulator is also integrated with python and c++ which allows many developers to work with this simulator. One of the main features of the simulator is that it's fast and also compatible with low-end computers.

We tried our best to build a realistic simulator in any aspect. Such as physics, control and drive, lighting, outdoor design; so it helps developers to get the most accurate results on testing their algorithms on various situations. As the simulator itself is optimized so it provides outputs from sensors and camera in real-time and with really low latency. Sensors such as LIDAR, RADAR, GPS are going to be added to this simulator in the future to allow developers to work on perception, path planning, and localization.



AVIS Researchers Association Membership Certificate

Special membership certificate for researchers in the field of autonomous vehicles

What is AVIS Researchers Association Membership Certificate?

AVIS Engine Group has established an association under the title "AVIS Researchers Association" to provide services and networking among researchers in the field of robotics and artificial intelligence, especially researchers in the field of autonomous vehicle development. In order to provide better services and create a wide community of AVIS Engine contacts, this association has considered to issue and provide certificates to people who qualify for membership in this association. In the following, we discuss the necessary conditions to receive "AVIS Researchers Association Membership Certificate".

Who Can Apply?

The necessary criteria to obtain AVIS Researchers Association Membership Certificate for Researchers is at least having one item as follows:

- Sending documents related to any activity in the field of development of autonomous vehicles
- Carrying out the project in the platform of AVIS Engine simulators along with sending video and Technical Report of Project (TRP)
- Innovation in project implementation in the AVIS Engine platform
- Participating in events held on the platform of AVIS Engine simulator such as FIRA RoboWorld Cup and presenting a certificate of participation in the competition

Membership certificates are provided based on activities performed at three levels: A, A+, and A++.

AVIS Researchers Association Membership Certificate

Special membership certificate for researchers in the field of autonomous vehicles

MEMBERSHIP LEVELS



People who are involved in the development of autonomous vehicles; They can receive A-level membership by submitting their resume and documentation of their activity if approved by the association committee.



People who have done a project on the AVIS Engine simulator platform can apply to receive A+ level membership by sending a video of the project done on the AVIS Engine platform and Technical Report of Project (TRP).



People who have innovated in carrying out the project on the platform of AVIS Engine simulator can apply for A++ membership by submitting the project documentation. Also, people who participate in events such as FIRA RoboWorld Cup, which is held on the platform of AVIS Engine simulator, can obtain A++ membership by presenting a certificate of participation in the competition.

AVIS Researchers Association

Membership Certificate

Special membership certificate for researchers in the field of autonomous vehicles

How can I apply for membership?

People must first fill out the initial membership form and register on the AVIS Engine website.

After that, in the next step, they can send their membership request by uploading the documents and entering the relevant information.











The result of the initial review of membership by the association committee will be sent to you by email.





AVIS RESEARCHERS MEMBERSHIP BENEFITS

- Tournament information; exhibitions ; Conferences and festivals that are held around the world in the field of robotics and artificial intelligence will be sent to the members of this association with discounts and special conditions for participation.
- AVIS Engine creates a network between the AVIS Researchers Association Members.
- The possibility of providing certificates to companies; AVIS Engine partner universities and organizations.
- Valid global certificate of membership.
- Members who receive A++ level membership can access new AVIS Engine products before they are available to the public; They have the possibility to test and review the product.
- It is possible to verify the validity of the certificate online on the AVIS Engine website.

Overview of the best teams in the FIRA Autonomous Cars Challenge



Team Name	logo	Affiliation
Hades		Hades Robotics Team
SHAHID MAZARI		The central and popular headquarters of Shahid Mazari from Afghanistan
Black Tear		Ako Robotics Intelligence - Science and Research Branch, Islamic Azad University, Tehran
SRBIAU		Islamic Azad University, Science and Research Branch
MCAC		Amirkabir University of Technology
YOUZ		Islamic Azad University Qazvin Branch
ACE		Islamic Azad University Kerman Branch
Bir Robotic		Bir Robotic Company
AI.py		Amir Kabir high school
Robotex Iran		Robotex Iran

Team Name	logo	Affiliation
KIAU Robo Team	 <p>KIAU . ROBO . TEAM KRT</p>	Islamic Azad University Karaj Branch
IRO	 <p>انگن می بیگس و کله ری آیین په لجه منن راک</p>	Arak University of Technology
Besat Programmers	 <p>په لجه منن راک</p>	besat high school
FIRA International Academy	 <p>fira FIRA Education Academy</p>	FIRA International Academy



AVIS ENGINE

Dreams Come True

THE BEST

No.4
December 2023

IN THE ENGINEERING WORLD

Introducing the best teams in the field of engineering in various world competitions





AVIS

Engine



AVIS Engine



AVIS Engine



avisengine