FIRA Challenge - Innovation and Business Laws of the Game (Pro/U19/U14)

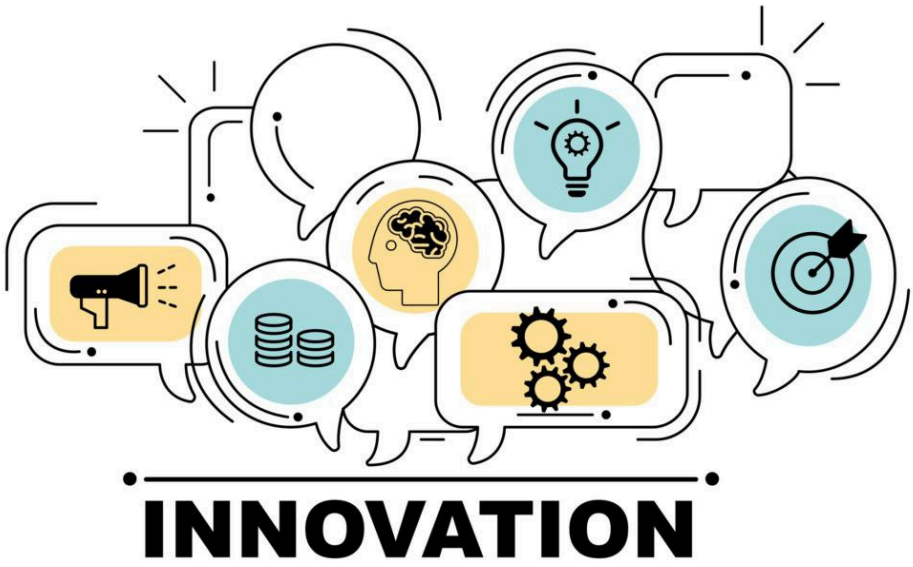
Soroush Sadeghnejad and Amirmahdi Zarif Shahsavan Nejad

Bio-Inspired System Design Laboratory, Amirkabir University of Technology, Tehran, Iran.

Let's Share it Together

Abstract

This league serves as a platform to showcase innovation and creativity in robotics, mechatronics, artificial intelligence, automation, and related fields. Participants compete with other teams and have the opportunity to present their developments and designs to investors, industry leaders, media representatives, and professionals at the exhibition venue.



[FIB-1] Introduction

Nowadays, many robotics researchers and investors are developing a project with a particular purpose beyond the existing FIRA leagues' objectives. The business model and commercialization potential of the ideas are the base objectives of this league. All entering teams should think of a business model for their projects. They are encouraged to have a plan for selling their projects in a professional environment with professional visitors. This rule is assumed for both **Professional** and **Youth (U14/U19) participants**. Through this project, students can learn to look into problems around us and find the solution with their robotics and AI skills, both in hardware, and software and apply it to see what will happen if they try to sell it in the real market.

This league will provide students with pieces of information about how startup companies start their historical work. On the other hand, some challenges may arise from companies or businesses.

FIRA Innovation and Business is a place for tackling these challenges, and the participants in the common topics contest will overcome the challenges on a common issue.

[FIB-2] structure

In the FIRA Innovation and Business League, ideas, inventions, and startups compete against each other in a dynamic and innovation-driven environment. The league is designed to highlight not only the technical and creative aspects of projects but also their real-world applicability, business potential, and commercialization readiness.

Participants are categorized into three main age divisions:

- **U14 (Under 14):** Designed for young innovators who are just beginning their journey into the world of robotics, technology, and entrepreneurship. This category focuses on nurturing creativity, teamwork, and early exposure to business thinking.

- **U19 (Under 19):** Aimed at high school students who have a more advanced understanding of robotics, AI, and problem-solving. This division encourages participants to take a step further by developing structured business models and presenting their ideas in a more professional context.

- **PRO (Professional):** This category is for university students, researchers, startups, and professional teams. Participants in this division are expected to present highly developed projects with clear innovation value, technical depth, and strong commercialization plans.

Across all categories, teams are judged not only on their technological innovation but also on their ability to present a viable business model, their understanding of market needs, and the

potential impact of their solutions. The league offers a unique platform where ideas evolve into real ventures and future entrepreneurs take their first steps toward market success.

[FIB-3] Objectives of the Competition

1. **Providing a Platform for Investment:** Enabling startups to attract investments and secure funding.
2. **Facilitating Networking:** Creating opportunities for networking among researchers, startups, and investors.
3. **Promoting Innovation:** Encouraging the development of innovative projects and technologies.
4. **Showcasing Talent:** Highlighting the skills and creativity of participants in AI and technology fields.
5. **Encouraging Knowledge Exchange:** Facilitating the exchange of knowledge and ideas among participants to drive technological advancement.

[FIB-4] Eligible Projects for Participation

The FIRA Innovation and Business League welcomes a wide range of projects that reflect creativity, technical skill, and entrepreneurial thinking. Projects can be entered into the competition at various stages of development, including:

- **Ideas:** Innovative concepts that address real-world problems using robotics, artificial intelligence, automation, or related technologies. Even if the idea is in its early conceptual stage, participants are encouraged to present a clear vision, its potential application, and an initial business model. This encourages creativity and early-stage innovation

- **Inventions:** Functional prototypes or novel solutions that demonstrate practical use of technology. These could include hardware devices, software platforms, or a combination of both. Inventions should offer something new, useful, or significantly improved compared to existing alternatives. Participants must be able to explain how their invention works, what problem it solves, and how it could be brought to the market.

- **Startups:** Early-stage businesses or startup teams that have developed a product or service and are preparing to enter or expand in the market. These teams should present a working prototype or minimum viable product (MVP), a clear business plan, market analysis, and a commercialization strategy. Startups should also demonstrate their readiness to scale or attract investors.

Projects from all three categories — idea, invention, and startup — compete side by side within their age division (U14, U19, PRO). This structure allows participants to explore their potential, regardless of how advanced their project is, and encourages growth through competition, feedback, and exposure to real-world business environments.

The league values innovation, feasibility, and impact, meaning that both technically complex projects and simple yet powerful ideas have a place. Whether you're just starting to explore a creative solution or you're already working on launching your own company, the FIRA Innovation and Business League is the place to present, learn, and grow.

[FIB-5] Competition

The competition will be held in three different main parts. Each team, and their participants will experience the following steps from when they will decide to take part in the event, and to be judged during the competition days.

1. Qualification
2. Booth
3. Stage

[FIB-6] Qualification

The qualification method differs based on the status of the chapter head in the country of the participants.

1. If there are FIRA local events in the region of the participants, the team must take part in the events that are organized by their local FIRA Organization chapters for their qualification for the FIRA international event.

2. If there is no local or regional event of FIRA in the country of participants, the qualification method is as follows:

[FIB-6-1] Requirements for both Pro and Youth League Teams:

The team must submit,

1. A video with the maximum duration of 120 to 180 seconds. The maximum size for the file is 20MB.
2. A TDP (Team Description Paper), that includes the following information:

    - All the team members with their affiliations.
    - Corresponding team members, who will have the right to represent the team for the future correspondence.
    - Picture and related documents to the main product.
    - A clear definition of the related problem or challenge which the team encountered to solve that.
    - The solution of the existing problem.
    - How you tried to solve the existing problem.
    - Features and technical specification of the product.
    - Your estimated price for developing this product or making the right solutions.

and therefore based on your submitted documents, the technical committee of the league will qualify the teams regarding the quality of their submitted video and documents.

Please follow the specified rules for writing your TDP since it might be a part of the FIRA Magazine.

[FIB-7] Booth

[FIB-7-1] Participants will have time to set up their booth on the setup day. The team should consider how much space is required for their project and its demonstration in the design of their booth. Booth space is dedicated to each team and is limited for all participants, so if their project is bigger than the limited space, they should have sufficient documents and demonstration tools for their project.

[FIB-7-2] All teams should have a poster from their project in A1 paper size placed in their booth, the template is up to teams with some standards which will be announced by the league organizational team some weeks before the competition.

[FIB-7-3] In the first two days of the event, referees will visit the booths and fill their score sheets. Judges are selected among well-known investors, company executives, professors, and professional robotic researchers. During these visits, referees will determine the scores for each team. Approximate demo time for the judge will be announced to the team on the first day.

[FIB-7-4] Participants will be available at their booths for a demo for judges and spectators during the exhibition time.

[FIB-8] Judging Criteria

Certainly! Here's an advanced, professional and highly detailed judging framework with **15 parameters** totaling **210 points**, covering all technical, business, design, marketing, presentation, and team aspects for the FIRA Innovation and Business League.

Parameter	Points	Explanation

1. Originality & Innovation	20	Degree of novelty and uniqueness in the idea, technology, or approach compared to existing solutions.
2. Technical Complexity & Engineering Excellence	18	Depth and sophistication of the engineering design, hardware/software integration, and quality of build.
3. Prototype Functionality & Reliability	16	Working performance, accuracy, stability, and consistency of the prototype or product.
4. System Integration & Automation	12	Seamless integration of subsystems (mechanical, electronic, software), automation level and synergy.
5. User Experience (UX) & Interface Design	10	Ergonomics, interface usability, intuitiveness, and aesthetic quality of hardware/software UI.
6. Market Research & Customer Insights	16	Depth of market analysis, understanding customer needs, segmentation, and competitive positioning.
7. Business Model Robustness	18	Clarity, sustainability, innovation, and scalability of the business model and revenue streams.
8. Commercialization & Go-to-Market Strategy	14	Feasibility of entering the market, sales channels, partnerships, and growth strategy.
9. Branding & Marketing Plan	12	Brand identity, promotional activities, digital marketing, social media usage, and campaign creativity.
10. Financial Planning & Funding Strategy	12	Realistic budgeting, cost analysis, funding requirements, break-even analysis, and investment plan.
11. Presentation Quality & Clarity	14	Organization, clarity, storytelling, visual aids, slide design, and timing of the presentation.

12. Communication & Q&A Handling	12	Confidence, responsiveness, clarity in answers, ability to engage judges and audience.
13. Team Collaboration & Role Distribution	12	Evidence of teamwork, leadership, clear role assignments, and effective collaboration.
14. Project Management & Execution	12	Planning, milestones, risk management, time/resource allocation, and ability to deliver on goals.
15. Social Impact & Sustainability	12	Consideration of environmental, social benefits, ethical implications, and long-term sustainability.

Detailed Explanation

1. Originality & Innovation (20 points)

- How unique and groundbreaking is the idea?
- Use of novel technologies or methods.
- Creative problem-solving approach.

2. Technical Complexity & Engineering Excellence (18 points)

- Advanced engineering design and development.
- Integration of multi-disciplinary systems (mechanical, electronics, software).
- Quality and craftsmanship of the prototype.

3. Prototype Functionality & Reliability (16 points)

- Working and stable prototype.
- Accuracy, efficiency, and real-world applicability.
- Robustness and error tolerance.

4. System Integration & Automation (12 points)

- Integration of different subsystems (mechanical, electrical, software).
- Level of automation and control sophistication.
- Smooth operation of the entire system.

5. User Experience (UX) & Interface Design (10 points)

- Intuitive, accessible, and user-friendly design.
- Visual appeal and ergonomic considerations.
- User interface quality if software-based.

6. Market Research & Customer Insights (16 points)

- Thorough market analysis and competitor review.
- Clear identification of customer needs and pain points.
- Well-defined target segments.

7. Business Model Robustness (18 points)

- Clarity and logic of business plan.
- Revenue generation and profitability potential.
- Scalability and sustainability of the model.

8. Commercialization & Go-to-Market Strategy (14 points)

- Realistic and actionable market entry strategy.
- Sales channels and distribution plan.
- Potential partnerships or collaborations.

9. Branding & Marketing Plan (12 points)

- Strong brand identity and positioning.

- Marketing tactics including digital and offline campaigns.
- Creativity and alignment with target market.

10. Financial Planning & Funding Strategy (12 points)

- Detailed budgeting and cost structure.
- Funding needs and sources.
- Break-even analysis and financial projections.

11. Presentation Quality & Clarity (14 points)

- Logical flow and well-structured slides.
- Engaging storytelling and use of visuals.
- Effective timing and use of stage presence.

12. Communication & Q&A Handling (12 points)

- Confidence and clarity during presentation.
- Ability to answer questions precisely and thoughtfully.
- Engagement and responsiveness to judges.

13. Team Collaboration & Role Distribution (12 points)

- Clear distribution of tasks and roles.
- Cooperation and teamwork demonstrated.
- Leadership and conflict resolution skills.

14. Project Management & Execution (12 points)

- Effective planning and timeline management.
- Risk identification and mitigation.
- Meeting milestones and deliverables on time.

15. Social Impact & Sustainability (12 points)

- Positive social or environmental impact.
- Consideration of ethical implications.
- Commitment to sustainability and long-term benefits.

Summary Table

Parameter	Points
Originality & Innovation	20
Technical Complexity & Engineering Excellence	18
Prototype Functionality & Reliability	16
System Integration & Automation	12
User Experience (UX) & Interface Design	10
Market Research & Customer Insights	16
Business Model Robustness	18
Commercialization & Go-to-Market Strategy	14
Branding & Marketing Plan	12
Financial Planning & Funding Strategy	12
Presentation Quality & Clarity	14
Communication & Q&A Handling	12
Team Collaboration & Role Distribution	12

Project Management & Execution	12
Social Impact & Sustainability	12
Total	**210**

[FIB-9] Stage

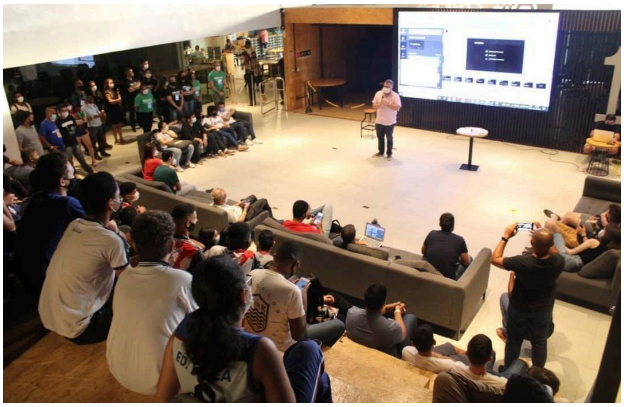
Top teams in all available sections will show and present their projects on the stage.

[FIB-9-1] Presentation timing:

- Setup: 2 minutes
- Presentation: 8 minutes
- Question and Answer: 5 minutes

[FIB-9-2] Presentation contents:

- Maximum 12 pages
- An introduction to the team's members and mentors
- The concept of the ideas, inventions or products
- Creativity and Uniqueness
- Compare with other similar projects
- Most important: Presenting the proper business plan



[FIB-10] Key Guidelines for Final Stage Presentations

To ensure a professional and impactful presentation on stage, all teams must follow the official presentation structure and content requirements. Below is a comprehensive guide to help teams prepare effectively:

Presentation Time Management

Total time: 15 minutes

Setup time: 2 minutes
Main presentation: 8 minutes
Q&A session: 5 minutes

Teams are strongly advised to rehearse in advance to strictly follow the timing and ensure enough time for audience and jury interaction.

Presentation Content (Maximum 12 Slides/Pages)

1. Team Introduction:

- Team name, country, and age category (U14 / U19 / PRO)
- Introduction of team members and their roles
- Introduction of mentors and advisors (technical or business-related)

2. Project Description (Idea, Invention, or Startup):

- Clear explanation of the problem being addressed
- The proposed solution and how it works (preferably with video/demo)
- Technology involved (robotics, AI, software, hardware, automation, etc.)

3. Creativity and Innovation:

- What makes the project unique and original
- Novel methods or technology combinations
- Innovative thinking in concept or execution

4. Comparison with Similar Projects:

- Market analysis and similar solutions
- Competitive advantages of the project
- Possible future improvements or scalability

5. Business Model and Commercialization (Most Important):

- Target customers and market segment
- Revenue generation model (e.g., Business Model Canvas)
- Go-to-market strategy
- Cost structure and revenue streams
- Sales and marketing plans
- SWOT analysis or strategic positioning tools

Key Tips for a Successful On-Stage Presentation

- **Team coordination and preparation:** Divide roles and practice multiple times.
- **Professional visual materials:** Clean, readable slides with visuals over text-heavy content.
- **Live demo or video (if available):** Greatly enhances impact and clarity.
- **Clear and confident speaking:** Maintain eye contact, good posture, and positive body language.
- **Q&A readiness:** Provide concise and informed answers backed by data or strategy.

Final Recommendations

- Your presentation file should be saved on a USB or your laptop, ready in advance.
- Maintain professional conduct and respect for jury members, competitors, and time limits.
- Having a printed business summary to hand out to the jury is highly encouraged and adds value.

This presentation is a unique opportunity to showcase your team's technical skills, creativity, and business insight. Prepare with excellence, perform with confidence!

[FIB-11] Awards

The awarding of prizes in this league is directly dependent on the total number of participating teams. However, the general structure of the awards is as follows:

- In each age category—U14, U19, and PRO—trophies and certificates will be awarded to the top three teams (1st, 2nd, and 3rd place).

- These awards recognize excellence in innovation, technical achievement, business potential, and presentation skills.

Important Note:
All participating teams, regardless of whether they are presenting an idea, an invention, or a startup, compete against one another in a single, unified competition. There are no separate competitive divisions based on the type of project. This approach encourages diverse projects to be evaluated on equal footing, fostering a richer and more dynamic competitive environment.

[FIB-11-1] FIRA Generative AI in Product Presentation Challenge

The **FIRA Generative AI in Product Presentation Challenge** is one of the official sub-challenges under the **FIRA Challenge – Innovation and Business** category.

This challenge is focused on the creative and innovative use of Generative Artificial Intelligence technologies for product presentation, marketing, branding, advertising, and business communication.

Teams are invited to develop AI-powered concepts and showcase how generative AI can transform the way products, services, and ideas are introduced to audiences through visual content, storytelling, promotional campaigns, digital experiences, and intelligent media production.

Participants may use different Generative AI tools and technologies to create innovative product presentation solutions with strong creativity, design quality, business value, and technological impact.

All teams are eligible to participate in this challenge, and official certificates will be awarded to the winning teams by the organizing committee.

Rules & Regulations:
https://drive.google.com/file/d/17EPOQ5JKw2ZM-N7Msruh_e9Bu6sp5GtL/view?usp=sharing

[FIB-12] Templates

Presentation template

Poster template

A guide to compiling a startup presentation

Last edit date : 25 June. 2025 (v1.0.6)