



Welcome to the sixth International Innovation Competition. The competition in its sixth session includes two main categories, which are the general competition and the challenges, and it is open to students, researchers, and graduates.

### Competition Tracks:

The first category is the General Competition for those who see in their projects the ability to challenge and implement, and the possibility of transforming that innovation into a marketable product or addition in the field of industry and trade. **It includes three main tracks:**

#### 1. Robotics and Industry

This track focuses on the design, development, and control of intelligent robotic systems. It emphasizes the creation of independent and adaptable robots capable of performing tasks in industrial, medical, and service environments, as well as innovations related to solutions associated with industry or complementary industries

#### 2. Medical and Environmental

##### Conservation.

This track focuses on innovative solutions in healthcare technologies and environmental sustainability, including medical devices, environmental monitoring, and green technologies

#### 3- Intelligent Software Systems

This track focuses on developing software, mobile applications, and artificial intelligence into unified solutions. It focuses on creating intelligent, adaptable and practical digital systems that address real-world challenges.

### Competition Challenges:

The second category is the direction of challenges through separate competitions. Each challenge has requirements for the contestant to implement as many of those requirements as possible, and **the challenges include:**

#### 1. Unmanned ground vehicle Challenge

Design and implement an Unmanned Ground Vehicle (UGV) that can autonomously navigate through a maze or obstacle course and transmit real-time images with a minimum of 1 Mbps and real-time audio to a ground station. The UGV should have a width between 50 and 60 cm and a length between 80 and 100 cm. It must support a maximum communication range of 150 meters and be capable of maneuvering through obstacles, inclines, and slopes of up to 30 degrees.

##### Key Focus Areas:

- Obstacle Detection.
- Path Planning.
- Balance Between Speed and Accuracy.
- Power Management and power sources.
- Lightweight Design.
- Intrusion Detection.
- Stealthy Movement.
- Remote Monitoring.
- Security.

#### 2. Renewable Energy Challenge

Design and implement innovative systems that harness renewable energy sources to provide sustainable and reliable power solutions. The project should demonstrate efficiency, scalability, and environmental impact reduction.

##### Key Focus Areas:

- Hybrid energy integration (e.g., solar, wind, and other renewable sources).
- Continuous 24/7 autonomous operation
- Energy storage and battery management
- Intelligent power and load management
- Accurate voltage, current, and power monitoring
- Remote monitoring and communication (Wi-Fi / 4G / LoRa)
- System protection and safety mechanisms
- Cost-effective and efficient system design
- Smart optimization and fault prediction features
- Fully functional working prototype can be implemented on a larger scale in the future



### ORGANIZING COMMITTEE

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