



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

Competition Tracks:

The first direction, there is a 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 model as a product or addition in the field of industry and trade. **Through three main tracks, which are:**

- 1. Robotics** This track focuses on the design, development, and control of intelligent robotic systems. It emphasizes creating autonomous and adaptive robots capable of performing tasks in industrial, medical, and service environments.
- 2. Medical Sector** This track addresses innovations in healthcare technologies, medical devices, and digital health solutions. It focuses on developing tools that improve diagnosis, treatment, and patient care.
- 3. Intelligent Software Systems** This track integrates software development, mobile applications, and artificial intelligence into unified solutions. It focuses on creating smart, adaptive, and practical digital systems that address real-world challenges.

Competition Challenges:

The second direction 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 25 and 30 cm and a length between 40 and 50 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:

- Solar Energy Utilization:
 - Design photovoltaic systems with maximum efficiency.
 - Smart solar tracking mechanisms for enhanced performance.
- Wind Energy:
 - Small-scale and portable wind turbines for urban and rural deployment.
 - Blade design optimization for variable wind conditions.
- Energy Storage and Management:
 - Advanced battery systems for storing renewable energy.
 - Smart grids and power management strategies.
- Hybrid Solutions:
 - Integration of solar, wind, and other renewable sources into hybrid systems.
 - Seamless switching between power sources for reliability.
- Sustainability and Materials:
 - Use of recyclable and environmentally friendly materials.
 - Lifecycle analysis and cost-effectiveness.

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