Egyptian Space Summit

2nd Edition

Competition Criteria

IEEE NU STUDENT BRANCH

Visualize The Future

Competition Regulations

- The main target of the competition is to get valid and applicable ideas related to the space industry.
- The team members will be from 2 to 5 members.
- Each project can be a mix of technical and Business challenges for measuring to what extent the idea is feasible.
- The evaluation criteria will not rely on technicalities only; it will depend on technical knowledge, presentation skills, and Business-related skills.
- There is a general track if you don't want any of these tracks or want to combine between more than one track.
- The competition is divided into two main levels.
- The first level is the **junior** level. It is created for high school students or below. (Age of team members: 18 years old or lower)
- The second level is the **advanced** level. It is created for undergraduate students. (Age of team members: 19 years old or higher)
- Each level has its winners and judging criteria.

- For junior level:
- the first place: 5000 EGP
- the second place: 3000 EGP

- **For advanced level:**
- the first place: 10000 EGP
- the second place: 7000 EGP

Deadlines


Deadlines Roadmap
Registration starts:15/8
The teams has to fill the registration form and the project idea and description
Registration Ends : 26/8
The registration form will be closed for announcing the finalists.
Workshops start : 28/8
These workshops will support you to prepare ypur final presentation and improve technicalities
Workshops End: 28/8
We give a chnce to prepare your final presentation
Final Presentations : 28/8

Junior Level Suggested Tracks

(1) CanSat missions:

- Scientists and engineers must work together to create the best satellite design. The scientific aim of your mission will directly affect how your CanSat should be engineered. Here, you will find the outline of your mission and hints to the hardware components you should include.
- The team must build a CanSat and program it to accomplish the primary mission to measure, after release and during descent, the following parameters:
  - Air temperature.
  - Air pressure
- The secondary mission of the CanSat must be selected by the team. Teams can take ideas from real satellite missions or collect scientific data for a specific project, make a technology demonstration for a student-designed component, or any other mission that would fit inside the CanSat and show its capabilities.

(2) Educational simulators for specific idea or project related to space industry or astronomy:

- Discovering space and knowing everything that is new makes us able to develop all areas on Earth. The goal of this challenge is to innovate to gain more information about space and its discoveries. Besides this, you can use programming as an assistant to know and collect the information and data necessary for space exploration.
- ***Hint***: you can make educational Application, website, or Game

(3) general track:

- In the previous tracks we have focused on the most pivotal topics in space, however you can find many challenges and problems, then design your own track in different topics.

Advanced Level suggests tracks

1) Space exploration track:

- This track is focuses on Space Exploration, as it is the use of astronomy and space technology to explore outer space. While astronomers use telescopes to explore space, both uncrewed robotic space missions and human spaceflight are used to explore it physically. One of the primary sources for space science is space exploration, which is like astronomy in its classical form. We can use space exploration to validate or disprove scientific theories that have been created on Earth.

- ***Hint***: Small satellites can be designed in this track.

2) Bio spy track:

- This track focuses on the strategy for continued expeditions human explorers, as it is expected to undertake long duration missions which will increase the requirement for maintaining good health in instances of extreme conditions including higher radiation exposure and lower gravity environment. These circumstances pose greater challenges to the astronaut such as metabolic stress, decompression sickness and radiation exposure. Using artificial intelligence to analyze data from satellites to detect and predict satellite performance and problems and provide a complete visualization of sound decision making.

3)Satellites missions track:

- Although everyone is aware of and has faced weather challenges on Earth, there is also weather in space that must be addressed. the challenge is to design a space mission to collect main data to observe changes, their causes, and patterns in the van Allen belt. Examples of Effects Caused by Space Weather: Aurora Borealis, Disruption telecommunication, Loss of GPS, Surges in electrical grids, Radiation. exposure to astronauts.
- ***Hint***: From design to belts write (you can use datasets on NASA website, Kaggle or machine learning algorithms to make a model that visualize them and return the changes, causes and patterns through visuals)

Advanced Level suggests tracks

(4) Communication and Data Transformation track:

- This track focuses providing the critical communication services for all Earth, space science, and human space flight missions. This includes all the telemetry, tracking, and commanding (TT and C) required by each spacecraft to transfer key data to the ground systems to manage space operations, as well as the voice communications with the human space flight missions and data transfer for all the Earth and space science missions.

- The first challenge in this track that you can use some data about specific area on the earth to enable us to find specific elements in the earth. It can help in Egypt to find water. (Space to earth application)

- ***Hint:*** you can use wekeo.

- The Second challenge in this track is to make an intelligent navigation system using AI (Artificial Intelligence). (Space to space application)

- ***Hint:*** You can use some sort of data and images about specific element in our solar system to make you system applicable.

(5) General track:

- In the previous tracks we have focused on the most pivotal topics in space, however you can find many challenges and problems, then design your own track in different topics.

Filtration & Registration Stages

- **Phase 1 (Registration):**

  - The deadline is due to 26/8/2022
  - Stage Objectives:
    Realize the problems, brainstorm for a solution, and pitch your ideas.
  - You need to submit your project summary about your idea.
  - It will include Problem definition, solution, methodology, results, and references.

- **Phase 2 (Workshops):**

  - There will be 3 days workshops that will support you in developing and improving your idea and prepare your final presentation.
  - The workshops will be cover technical aspects which are included in the tracks of the competition, and non-technical aspects about business model structure and entrepreneurship.
  - The workshops will be due to:
    (1)28/8/2022
    (2)29/9/2022
    (3)30/8/2022

- **Phase 3 (Final Presentation):**

  - The final presentation will be in the event day: 1/9/2022
  - Requirements:
    Final draft of Business Model & Presentation
    Maximum number of slides is 20 slides.
    Your outline must divide to introduction, body, and methodology.
    Maximum time of presentation is 10 minutes.