

**Reto de
Innovación
IEEE 2017**

2017 IEEE Innovation Challenge
Diseñemos drones para el monitoreo de ríos
Let's design drones for the monitoring river

Register before May 27
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RITA INSTITUTO TECNOLÓGICO DE CALDAS
AESSE ASOCIACIÓN DE ESTUDIANTES DE LA UNIVERSIDAD DISTRITAL FRANCISCO JOSÉ DE CALDAS
UNIVERSIDAD DISTRITAL FRANCISCO JOSÉ DE CALDAS

2017 IEEE Innovation Challenge

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Purpose

The 2017 IEEE Innovation Challenge invites students, research groups and seeders and enthusiasts to design DRONES -unmanned aerial vehicle systems- for direct monitoring and sampling in river basins.

Students and enthusiasts are invited to compete with technological designs in the 2017 IEEE innovation challenge.

Previous event: 2016



Planetarium of Bogotá, June 29, 2016. Grand Finale. IEEE Innovation Challenge at Bogota Robotics Forum.



Flyers of 2016 IEEE Innovation Challenge



Bogota City ICT Office, May 11, 2016. Students and Professionals discussing organization of Innovation Challenge.

Firemen, Professors and a Journalist: Judges of Innovation Challenge.

2016 Participants:

País	Institución	Nombre Equipo	Apellidos	Nombres
Perú	Universidad Nacional Del Callao	IEEE RAS UNAC PERÚ	Perez Lacherre	Anthony Marcelo
Nicaragua	Universidad Centroamericana	IngerSolution	Barboza	Brenda
Perú	Pontificia Universidad Católica del Perú	E-Wayra	Yllahuamán Bonifas	Kelvin Thomas
Colombia	CUN	SIN	Kejci Garzón	Edgar
Colombia	Corporacion Universitaria Minuto de Dios UNIMINUTO	SIN	Otálora Arévalo	Juan David
Colombia	Fundación Universitaria Los Libertadores	SIN	Giraldo Quiceno	Andres Felipe
Colombia	Escuela Tecnologica Instituto Tecnico Central	Semillero de robotica e impresion 3D	Sanchez Bohorquez	Diego Alejandro
Colombia	Corporación Universitaria Unitec	Delta	Valero Lozada	Harwin Manuel
Colombia	Universidad Distrital	Anker & Fokker Technologies	Rojas Corredor	Jonathan Steven
Colombia	Universidad ECCI	UAV HIBRIDO-ELECTRICO	Campos Villarraga	William Gabriel
Colombia	Universidad Militar Nueva Granada	GIDAM	Solaque Guzmán	Leonardo Enrique
Colombia	Universidad Distrital Sede Tecnologica	UDfireBD	Estepa Rincon	Daniel Jaime Cristian
Colombia	Escuela Tecnológica Instituto Técnico Central	Distronica-ITC	Olivares Walteros	John Milton

Thanks to IEEE R9 cooperation, there were 13 contestants teams from 3 Latin Countries.

Previous event: 2014

On September 6,
the first IEEE
Innovation
Challenge was held
in BOGOTÁ at the
High Technology
Center with the
assistance of more
than 60 members
and friends of
IEEE.

The challenge was
to present the
design of a remote
sensing station for
early community
alerts.

Important dates:

- *Opening of registrations: March 27, 2017.*
- *Closing of registrations: May 27, 2017.*
- *Publication of admitted competitors: June 7, 2017.*
- *Auditions: June 28, 2017.*
- *Grand finale: June 29, 2017.*

A- CHALLENGE:

Design a system of unmanned and / or remotely manned airborne vehicles (drones) that allows direct monitoring and sampling in the basin of a river under study, identifying the level of contamination, discriminating and quantifying the proportion of the pollutants present and reporting to a data center.

B- BASIC CHALLENGE RULES:

- *Contestants should present a conceptual design centered on a representation of those technical aspects that will be visible to the end user including sensor stations on board unmanned and / or remotely manned aerial vehicles (drones), by radiodetermination, radionavigation and / or radiolocation.*
- *Describe a technological solution that serves to solve the problem of the challenge, with minimum environmental impact, that under no circumstances will the fauna and flora of the river basin be affected by the monitoring system.*
- *Explain how the drones designed will be able to interact with watershed information systems or with micro-watershed environmental management plans, aquifer environmental management plans and / or other environmental planning instruments related to water resources.*

C- CATEGORIES:

- 1. Parrots: Boys and girls elementary students.*
- 2. Papagayus: High school students.*
- 3. Condors: students of technical, technological level, university students from 1^o. to 7^o. semester and amateurs.*
- 4. Eagles: University students 8th semester and up to doctoral students.*



D- DELIVERABLES:

D1- A technical article IEEE (Institute of Electrical and Electronic Engineering) magazine format, of at least four (4) pages and a maximum of six (6) pages, including an annex with a infographic data of the river under consideration. Option for Category 1: A letter-sized document, which includes title, name of the school, author's names, school year, summary and a drawing and a descriptive annex of the river basin under consideration. The document must be submitted before the closing of registrations, according to the indications of the web page of the event.

Deliverables (II)

D2- A video of one (1) minute. In the video the contestants are introduced by themselves having as background the facade of the entity or institution to which they are linked and the leader says that they will compete with a design of remotely unmanned aerial vehicles to monitor rivers. Video title: 2017 IEEE Innovation Challenge. Video description: title of the project, name of institution, city, name of the group, names of members. The video must be uploaded to the www.youtube.com portal, by death line of registrations.

Deliverables (III)

D3- An oral presentation of maximum fifteen (15) minutes with maximum fifteen (10) slides. The oral presentation is made on the dates and times and in the auditoriums (in Bogotá) programmed by the organizers of the challenge, according to the indications of the web page of the event. Contestants who reside outside Bogotá or Cundinamarca may present themselves by video-conference, according to the indications of the web page of the event.

E- DESIGN CRITERIA:

- *The design criteria are freely chosen by the contestants, however they must explain in detail the choice of each related element.*
- *Contestants must make their own documentary search, in addition to the reference documentation suggested on the event's website: this portal.*
- *This design should explain the construction of a prototype, including a prototype diagram, a timetable for implementation, and an estimate of the resources required for the prototype.*

F- QUALIFICATION CRITERIA

The following are the eight (8) points that will count at the time of qualification:

- *Energy system (alternative energies)*
- *Mechanical system*
- *Communication system*
- *Sensors*
- *Software requirements*
- *Normative*
- *Environmental impact (climate change)*
- *Creativity or Value Added*

G- REGISTRATION:

Registration of the teams will be made through the website of the event.

The contestants will be able to form a team of minimum three (3) and maximum five (5) people and register as a team.

The registration of each contestant team will be made by the design leader with the following information: Name of the Project, Description (abstract) of the Project, Institution to which they are linked, Name of team, research group, IEEE Branch), Names and Surnames of Team Leader; National Identity Document Number, E-mail, Mobile, First Name, Last Name and Identity Document Number of the other team members (maximum four).

Each team should consist of students from primary, secondary, undergraduate, technical careers, technological careers, university graduate.

Registration (II)

Categories 1 and 2 teams may include a maximum of one (1) professional or one (1) graduate student. Category 3 teams may include one or more amateurs.

- The admission of more than one team by university, college, military unit institute, police unit or science and technology entity is allowed.*
- The registration of a team that includes one (1) contestant previously registered by another team is rejected.*
- Registrations can be modified until the closing time.*
- Registration will be closed on May 27, 2017 at 11:59 PM, Bogota, Panama, Quito, Lima Time (-5: 00 UTC).*

H- CALLING ORGANIZATIONS:

- *IEEE Student Branch District University Francisco Jose de Caldas;*
- *IEEE Student Branch District University FJC Technological Faculty;*
- *IEEE Student Branch Militar University of New Granada;*
- *IEEE Student Branch Autonomous University of Colombia.*
- *IEEE Aerospace and Electronic Systems Society (AESS).*
- *Colombian Chapter IEEE AESS.*
- *Advanced Technology Research Network - RITA.*
- *University Francisco Jose de Caldas.*

I - ALLIED ORGANIZATIONS:

- *Office of Comptroller of Cundinamarca.*
- *Special Administrative Unit of Civil Aeronautics - Aerocivil.*
- *Association of Japanese Ex-grantees -Nikkoryukai.*
- *Colombian Association for the Promotion of Education and Technology.*
- *Computerworld Colombia magazine.*
- *Directorate of Science and Technology of the Colombian Air Force.*
- *Army Aviation School Direction.*
- *Others.*

J- Technology support:

The Advanced Technology Research Network - RITA, as the organizer of this academic activity, will offer the following services:

- *News Page*
- *Call for papers*
- *Certificates*
- *Technological advice*
- *Academic search engine*
- *System of research groups and seedlings*
- *Advisory services for research calls*
- *Connection to advanced academic networks*
- *Installation of technological platforms*
- *Video Streaming*
- *Connectivity*
- *Rita_UD wifi network (if RITA direct radio link is available).*

Information: Rita.udistrital.edu.co