



UNISEC-Global The 64th Virtual Meeting

January 17th, 2026, 22:00-24:00
(Standard Japan time GMT +9)

64th Virtual UNISEC-Global Meeting
Theme: Next Step of the IoT Program and Local Chapter Activity Report
Time: 22:00-24:00(JST) January 17, 2026

Hosted by **UNISEC GLOBAL**

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Moderator

George Maeda, ArkEdge Space

Next step of Nano-satellite IoT Constellation Program by International Collaboration
 Shinichi Nakasuka, The University of Tokyo

IoT experiment with Nano satellite in Fiji
 Masanobu Tsuji, ArkEdge Space

Local Chapter Activity Report

UNISEC-Bulgaria
Nikolay Tomov

UNISEC-Italy (Video Presentation)
Paolo Marzioli

UNISEC-Tunisia
Kamel Besbes

UNISEC-Samara
Igor V. Belokonov

UNISEC-New Zealand (Video Presentation)
Jim Hefkey

The following report was prepared by UNISEC-Global Secretariat
January 17, 2026
Japan

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1 Opening Remarks: Next Step of Nano-Satellite IoT Constellation Program by International Collaboration

Shinichi Nakasuka, University of Tokyo

Prof. Nakasuka graduated with a Ph.D in Aeronautics and Astronautics at the University of Tokyo. His main research is on astrodynamics and artificial intelligence. He joined a computer and became involved in research around AI and automated manufacturing. He became a lecturer at the University of Tokyo in 1990. He has been a professor at the Department of Aeronautics and Astronautics since 2004. He has led the students in his lab, Intelligent Space Systems Lab (ISSL), in developing CubeSat and small satellite. He has been one of the pioneers of small satellite development.



Pictured: Prof. Nakasuka during his presentation

Highlights:

- IoT mission collects ground information
- It is a store and forward mission
- IoT receiving satellites can be simple like the 3U 'TRICOM-1R'
- **Where 'TRICOM-1R' used LoRA module for communication**
- IoT has wide applications like
 - Monitoring Animal movement over wide area
 - Wildfire detection and monitoring
 - Flood detection and monitoring
 - Agriculture Field monitoring
- UNISEC-Global provides an opportunity to collaborate on IoT missions
- Merits of this collaboration
 - Can do a lot of missions, even with small number of satellites
 - Developing only ground sensors also contributes to overall program
 - Resources can be shared by countries
 - Can show the government use of space technology for solving real life problems

Current Status of IoT Program in UNISEC-GLOBAL



Pictured: Status of the IoT programs

- Prof. Nakasuka asked to experiment IoT Transmission to ArkEdge Satellite
 - Specifically, he asked to build a LoRa transmission module
 - As LoRa is popular worldwide and its components should be easy to retrieve
 - Required specification for LoRa will be provided by ArkEdge Space
 - A simple guidebook will also be provided
 - For this first step the LoRa will have a frequency band of 902.6 MHz to 923.4 MHz
 - This will be an end-to-end process from country specific licensing to receiving data
- **Later, ArkEdge Space will announce a period of ‘IoT experiment campaign’**
- When you can send data to a satellite and check connectivity
- Prof. Nakasuka does not want modules to be bought
- Rather, he prefers standard own made modules
- Having a standard component makes the IoT transmissions easier
- **ArkEdge Space has ways to check whether the components meet the standard**
- All of this can be done in ‘IoT experiment campaign’
- In future, ArkEdge Space might also provide the IoT transmitter components
 - Provides components already meets the standard
- For any queries contact- iot-support@unisec-global.org

Q&A Session:

UNISEC Participant, Aliza Sarwat: Can I participant in the satellite making process even if I am new?

Prof. Shinichi Nakasuka: Yes, we encourage anyone to participate.

2 Presentation: IoT experiment with Nano satellite in Fiji

Masanobu Tsuji, ArkEdge Space

Masanobu Tsuji is the technical consultant of ArkEdge Space. ArkEdge Space is a manufacturing firm that offers microsatellite design, development, production, and operational services. ArkEdge Space is a collaborative and technical partner of the IoT constellation mission by UNISEC-Global.



Pictured: Mr. Tsuji sharing his experience

Highlights:

- Shared his results from Fiji as an example for how countries can be part of this UNISEC IoT mission
- Visited Fiji on Jan 9, 2026
 - Took them 9 hours as Fiji is 7140 km from Japan
- **The outline of their experiment is as follows**
 - Collect meteorological data every hour
 - Like wind speed, Air pressure, Temperature, and so on

- Uplink the data in 920MHz when ArkEdge satellite are above Fiji, store the data
- Then downlink the data when ArkEdge satellite are above Japan in X band (8 GHz)
- And finally access the data on ArkEdge Insights in Fiji via Internet
- As mentioned by Prof. Nakasuka, each country has a different case for licensing
- In case of Fiji, some issues faced by Mr. Tsuji are
 - **Their experiment is the first case to use 920MHz in Fiji**
 - So, first they had to register for spectrum license
 - Done by Ministry of Trade, Co-operatives, Small and Medium Enterprises, and Comm
 - Then the team submitted all the documents to Telecommunication authority of Fiji
 - Which said the experiment was license free
 - Finally, the team also received an import permit
 - The entire process took them 3 months
- Using a car as battery source, Mr. Tsuji attempted to transfer weather station data to ArkEdge satellite



Pictured: First attempt to transmit data from Fiji

- The Team succeeded with a setup at Backyard of FMS
- Which contained a designated data logger and battery box
- With weather station and LoRa Transmitter
- **Entire system was in a remote area with no air or internet connectivity**
- For the entire experiment, they used 5 satellites
 - **Receiving 200 packets from each**
 - Each packet had a packet length of around 50 bytes
- Establishment and Operation of ground stations
 - ArkEdge has 2 ground stations
 - Shizuoka station is about 200km from West of Tokyo
 - Hokkaido station is 500km from North of Tokyo
 - Ground stations have a parabolic antenna with 3.9m Diameter
- What ArkEdge needs from participant countries
 - Confirmation of license free or temporary license for 920MHz Uplink
 - Import permit

Q&A Session:

Prof. Shinichi Nakasuka: *If participants develop their own components by purchasing the component inside of the country, they do not need an import permit, right? For example, LoRa modules, sensors, and antennas can be developed inside the country without an import permit, is that right?*

Masanobu Tsuji: Yes, if we get some instruments or communication equipment from Japan, it needs import permit.

UNISEC Participant: *How does LoRa modulation perform in space to ground communication compared to traditional satellite communication?*

Masanobu Tsuji: The argument lies in output power. In a very small power, we can send data from ground to satellite using LoRa modulation.

UNISEC Participant: How does data reach its destination on the ground? Is there an IoT Platform that collects the data and makes it available for users to consume it?

Masanobu Tsuji: Yes, we are preparing the data platform with accurate insight. So, that the platform can show correcting data and other remote sensing data as well.

UNISEC Participant: Can I use LoRa Tx without Ground Station?

Masanobu Tsuji: Yeah, as the first step, you can prepare the found sensor and send it to the satellite. The ground station is a big parabolic antenna, so don't worry so much.

3 Local Chapter Activity Report: UNISEC-Samara

Ohana Berger, Samara University

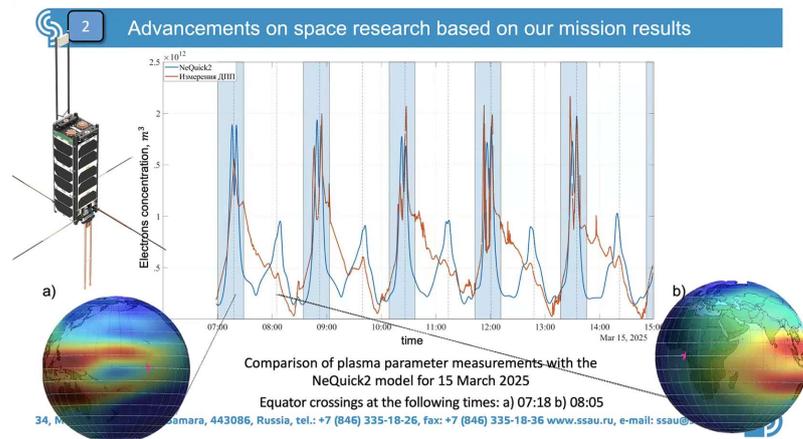
Ms. Ohana is a PhD student at the Space Research Department of Samara University. She is representing her PhD supervisor, Prof. Igor Belokonov.



Pictured: Ms. Ohana during her presentation

Highlights:

- Samara is considered the space capital of Russia
- **It is the city where Yuri Gagarin's rocket was built**
- So, it is one of the centers of Russian's space industry
- Main activities of UNISEC-Samara
 - International Summer Space School
 - A 2-week training
 - With both theoretical and practical classes
 - Taught by experts and professionals
 - School is conducted in English and is internationally recognized
 - Upon completion participants receive a certificate equivalent of 3 ECTS
 - The school is conducted in Space Research Department of Samara University
 - The classrooms are the actual labs, ground stations, testing center, and so on
 - Last year UNISEC-Samara had 11 countries joining this program
 - The goal is to provide participants with a similar experience to real space projects
 - Advancement on space research
 - **Satellite, SamSat ionosphere is working for 14 months now**
 - UNISEC-Samara was able to reconstruct the geomagnetic field map over Russia
 - Developed within department of Space Reach of Samara University
 - Patent for antenna deployment system and the plasma parameter sensor
 - Another one of their results was mapping of electron concentration



Pictured: Comparison of mapping of electron configuration with other models

- This helps understand signal transmission and signal reception
- UNISEC- Samara also celebrated 2 special days
 - Gagarin's Day on April 12
 - Victory Day on May 9
- By transmitting a commemorative signal from space
 - Which radio amateurs around the world successfully received, awarded QSL cards
 - In spirit of celebrating, they also conducted a video contest for celebrating Gagarin's Day
 - 2 min video answering "What does Gagarin and his achievement mean to me?"
 - All the participants were awarded a certificate signed by the Head of Space Research
 - A group of students from Nigeria won 1st place
- IV Russian Symposium on Nanosatellites
 - Symposium organized every 2 years
 - Option for both in person and online
 - Almost 60 scientific presentations so far
 - Attended by representatives from BRICKS, JAXA, Belarus, and so on
- UNISEC-Samara has been an active participant in national and international conferences
 - Some of the National Conferences include
 - LXXV Youth Scientific Conference
 - XXVIII Russian Seminar on Flight Vehicle Motion Control and Navigation
 - Samara Regional Student Scientific Conference
 - Some of the International Conferences include
 - III Brazilian Aerospace Congress, Brazil
 - Techfest IIT Bombay, India
 - 76th International Astronautical Congress, Australia

4 Local Chapter Activity Report: UNISEC-Tunisia

Kamel Besbes, Faculty of Sciences of Monastir

Prof. Kamel Besbes was born in 1960 in Monastir, Tunisia. He received the B.S. degree from the Faculty of Sciences of Monastir (Tunisia) in 1985, the M.S. degree from the Ecole Centrale de Lyon (France) in 1986, the PhD degree from the Institut National des Sciences Appliquées de Lyon (INSA), France, in 1989 and the "State Doctorate Degree" from the Faculty of Sciences of Tunis (Tunisia) in 1995. In 1989, he joined the Faculty of Sciences of Monastir as an Assistant Professor of Physics and Electronics. He has established teaching and research laboratories in microelectronics since 1990. Research efforts are focused on microelectronics from devices to embedded micro-systems and Instrumentation for detection and navigation for space applications.



Pictured: Prof. Kamel during his presentation

Highlights:

- UNISEC-Tunisia was created in 2013
- Major achievement of UNISEC-Tunisia is
 - Conferences and training organization
 - Organizes a conference every year
 - **4th conference of UNISEC –Tunisia is called ‘SPACE STAR’**
 - Successful with participants from various countries
 - 2 participations on conferences
 - IoT mission idea presenter of the 56th Virtual UNISEC global meeting
 - Partnered with UNOSAA, JPO, IAF, AfSa, EgSa
 - Research and Development projects
 - Closing the project FACT
 - FACT was successful with participation of
 - 10 Researchers and 5 Engineers
 - 15 Grad students, 15 Undergrad students
 - Tunisia has clean room facilities and their own CubeSat models
 - Some ground segment for space IoT:
 - Gases and water quality, Multi-GNSS and Earth Observation
 - Multimodal Satellite Sensing Technologies for IoT
 - New mission for 2026 – 2030
 - With focus on advancing environmental monitoring
 - Space-based multi constellation IoT communications
 - UNISEC- Tunisia also supported Tunisian submission to KiboCube call for 2025
 - **Invites all UNISEC members to 5th SPACE STAR conference in November 2026, Tunis**
 - SPACE STAR conference is annual flagship conference bringing all space actors together
 - Website: <https://spacestar.tn/>

Q&A Session:

UNISEC Participant: *Could you please explain what you have done and what is the achievement in quantum communication?*

Prof. Kamel Besbes: We try to develop quantum distribution protocols, to develop security of communication. And we introduced new courses in masters in quantum technology in general and particularly in quantum communication.

UNISEC Participant: *Is there any experimental setup for this course?*

Prof. Kamel Besbes: Not yet, but we have simulation on qiskit or some other cloud simulators. We have some work on protocols to develop the QKD.

5 Local Chapter Activity Report: UNISEC-Italy

Paolo Marzioli, Sapienza University of Rome

Dr. Paolo Marzioli received his PhD in Aeronautical and Space Engineering at University of Sapienza Rome in 2021, with a thesis based on nano-satellite navigation systems. He belongs to the S5Lab Research Group, where he participated in the development of four nano-satellites and three stratospheric payloads, as of 2022. He coordinated several student projects in space systems development for different international programs. He is an Assistant Professor at Aerospace Systems at the Department of Mechanical and Aerospace Engineering (DIMA) at the Sapienza University of Rome, where he teaches "Spacecraft Design" and "Aircraft Systems" with shared credit. His research topics are related to small space systems development, navigation and tracking systems for novel aerospace mission profiles and concepts, Space Traffic Management, and space debris identification and tracking. Until he was a doctoral student, he was a student representative for UNISEC-Italy.



Pictured: Dr. Paolo Marzioli seen in a file photograph

Highlights:

- Established in 2014 by 4 Universities
- Participated in all UNISEC-Global Meetings
- Been active in MIC with very good results
- Major actives
 - VIPER Mission
 - Is a double mission based on accelerometric data
 - Both for structural systems investigation on sounding rockets and launcher vehicles
 - Experiment is merging a lot of students
 - Has been accepted and will be launched in March 2026
 - **Capacity building program in Panama and Dominican Republic**
 - Managed by Italian Latin American International Organization
 - Basically, is fostering awareness on space, CubeSat building
 - In Dominican Republic and Panama as target countries
 - This past year, UNISEC-Italy built an operational UHF GS in both the countries
 - Foreseeing to start building the satellites this year
 - Collaboration with international partners
 - Collaborating with UNISEC-Korea and Japan
 - Joint student boards and experiment on CubeSat
 - Some students are jointly building a board for one of the next Korean CubeSats
 - While 2 students are in Japan participating in project QCAT
 - QCAT will be launched for an experiment on board the Japanese satellite
 - CORAL Launched to orbit
 - **On 26 October 2025 CORAL satellite was launched to ISS**
 - Deployment is scheduled for February from the ISS

6 Local Chapter Activity Report: UNISEC-New Zealand

Jim Hefkey, University of Auckland

Mr. Jim Hefkey is the Director of the Auckland Program for Space Systems – an undergraduate program that challenges students from all disciplines to identify and solve a problem using satellites. CubeSat's being built from this program will be launched into orbit through New Zealand's own launch provider. With a lifelong interest in space, Mr. Hefkey's goal is to establish space education programs throughout New Zealand. He is a graduate of the CLTP in Japan, NZ POC for UNISEC Global, active in the New Zealand Rocketry Association, and a foundation member of the KiwiSpace Foundation. He currently holds the position of Professional Teaching Fellow at the University of Auckland and has been part of a team working with the University and Government to establish the Space Systems Institute for NZ. He lectures in Engineering Systems, Technology Management, and Engineering Management.



Pictured: Mr. Hefkey seen in a file photograph

Highlights:

- Auckland Program for Space Systems (APSS)
 - A student run space program founded in 2016
 - First mission, Quake Tech flying in 2020 on the electron return to center mission
 - Follow up mission are currently in development
 - MIC is held every year for students to pitch their own satellite ideas
 - Second satellite called 'Kessler' due to fly in 2026
 - **Tackles overcrowding of LEO by using a 50m electrodynamic tether**
 - That helps create a magnetic field that pushes against Earth
 - This slowly decelerate the satellite, reducing the time to deorbit by over 60%
 - Third satellite called 'Koios', education focused satellite
 - Providing data and imagery to any students in any year level
 - Support next generation to a STEM outreach and provide real satellite data to use
 - Launch date estimated to be end of this year
- P-Sat 24-25, annual student CanSat program
 - Teams of student designing and building their own payload
 - Launch them to height of 1km
 - **Had 6 successful team launches with 36 participants**
 - Each team follows the NASA mission design architecture
 - Payloads ranging from physical 80s film camera, to national flag
 - Many students are now working as mentors for the next PSat team
- P-Sat 25-26, teams now have a mentor as their mission planner
 - Also have workshops with industry and professionals to teach them skills from system engineering to PCB design
 - 50 students applied, 6 payloads in critical design review
 - Launch is estimated for next months
- 8th Mission Idea Contest
 - 10 mission ideas proposed

7 Announcement and Acknowledgment

Ms. Haruka Yasuda, UNISEC-Global



Pictured: Yasuda-San announcing the latest updates from UNISEC-Global

Highlights:

- **The 11th UNISEC-Global Meeting**
 - Date: November 1 – 4, 2025
 - Venue: The University of Tokyo, Japan
 - **Was successful, recording and slides available here:**
 - <https://unisec-global.org/meeting11.html>

- **The Mission Idea Contest**
 - The 9th Mission Idea Contest : to the Moon
 - Theme: Lunar Mission
 - <https://www.spacemic.net/>
 - 25 abstracts were submitted from 14 countries
 - 10 finalists and 4 semi-finalists were selected
 - **Was successful, recording of final presentation is available in website as well**
 - Contact: info@spacemic.net

- **Nano-satellite IoT Constellation Program**
 - A new program launched by UNISEC-Global
 - Jointly design satellite bus (3-6U) with online guidance
 - Each satellite will be developed by each country with its own funding or if difficult
 - Will jointly search for international funds
 - All the satellites have the **same mission payload** to contribute to solving global problems
 - Or local problems as a constellation
 - Each country can have **one specific mission payload** for its own interest
 - Web: <https://unisec-global.org/iot.html>
 - **Next Step : Experiment IoT Transmission to ArkEdge Satellite**
 - For enquiry about experiment contact: iot-support@unisec-global.org
 - Contact: iot@unisec-global.org

- **Next Venue Announcement**
 - **The 12th UNISEC-Global Meeting**
 - **To be held online**
 - To facilitate all POC and students from all local chapters to participate
 - Details will be announced later
 - In person **POC** gathering at Antalya, Türkiye, afternoon
 - **October 4, 2026**, in conjunction with IAC (T.B.D)

 - **15th Nano Satellite Symposium to be held at Tainan, Taiwan**
 - November 8 – 12, 2026, with
 - PreMIC10, 2nd IoT Workshop and 3rd Deep Space Workshop

- **CLTP15 (CanSat/ CubeSat Leader Training Program)**
 - Completed: August 18 - 28, 2026
 - Venue: Nihon University, Chiba, Japan
 - Application will start in January 2026
 - Contact: secretariat@cltp.info

- **Launch Opportunity: J-Cube**
 - Special Discounted opportunities
 - 1U, 2U, 3U, deployment from International Space Station
 - Collaborate with UNISEC-Japan's University, technical support will be provided
 - Contact: info-jcube@unisec.jp , <http://unisec.jp/serviceen/j-cube>

- **Next Virtual Meeting**
 - Date: February 21, 2026
 - Theme: Exo-planet
 - Host: UNISEC-Global

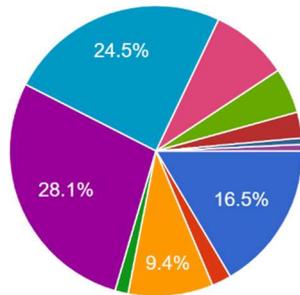
8 Participant Statistics

139 registered participants from 41 countries and regions for the 64th Virtual UNISEC-Global Meeting.

Country/Region	Registrants	Country/Region	Registrants
Afghanistan	1	Peru	4
Belarus	2	Philippines	4
Botswana	1	Portugal	1
Bulgaria	4	Romania	2
Burkina Faso	4	Russia	2
Chile	1	Rwanda	1
Côte d'Ivoire	1	Saudi Arabia	1
Dominican Republic	2	Somalia	2
Egypt	10	South Korea	1
Gambia	1	Taiwan	2
Germany	1	Tanzania	1
Ghana	1	Tunisia	4
Guatemala	1	Turkey	1
India	9	Uganda	1
Japan	9	UK	2
México	1	Uruguay	1
Nepal	2	USA	3
Niger	1	Vietnam	1
Nigeria	47	Zambia	3
Pakistan	1	Zimbabwe	1
Paraguay	1		

Student or professional?

139 responses

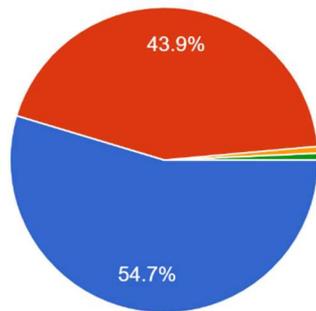


- Student (undergraduate)
- Student (master)
- Student (PhD candidate)
- Student (other)
- Professional (university)
- Professional (government, space age...)
- Professional (private company)
- Professional (NGO)

▲ 1/2 ▼

Have you ever joined any local chapter's activity?

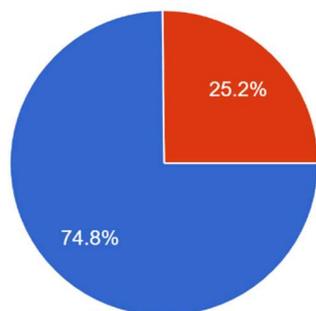
139 responses



- Yes
- No
- IOT mission Training
- I don't know how but I could if offered.

Have you participated in the UNISEC-Global Meeting previously?

139 responses



- Yes
- No

UNISEC-Global Social network accounts



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<https://www.linkedin.com/groups/8982613/>

Thank you