IEEE Connecting the UNCONNECTED™ An IEEE Future Networks Program CHALLENGE

Call for Participation

According to the United Nations, just over half of global households (55%) have an Internet connection. In low and middle income countries, only 47% do and that number falls to just 19% in least developed countries.

There are profound implications to having about 2.9 billion unconnected or under-connected people across the globe, and these effects have been exacerbated significantly under the COVID-19 pandemic. These digitally disadvantaged populations lack access to online marketplaces to sell goods and services, and students lack access to education. Working or studying from home is simply not a reality for those lacking internet access, forcing a tradeoff between staying healthy, studying, or earning a living. Offline students often receive no education at all during this time. In addition, falling global economies leave such workers and students with few options, while governments and nonprofits are more challenged to support them than ever before.

In light of this dire and increased need, the IEEE Future Networks Technical Community (FNTC) has endeavored to support a competition to identify and award innovative ideas and early-stage projects which have potential to connect the unconnected. By recognizing innovative individuals or organizations, IEEE can raise awareness of the digital divide and encourage new entrepreneurial efforts to provide internet access to unconnected populations.

The 2023 competition has two main tracks:

1. **Concept-Only track**: These are individuals or groups who have novel ideas that only exist “on paper” with simulation or analytical results, demonstrating potential towards the CTU vision of affordably connecting unconnected populations. Prizes in this track will be lower than the POC track.

2. **Proof-of-Concept track**: This category is intended for individuals or groups who have already demonstrated their innovation with a basic proof-of-concept implementation or a pilot program and can show preliminary results, or successful field deployment(s). The submission in this category should include a description of the general design and proposed functionality including implementation of specific features that are novel/innovative. In addition to implementation, it can include a (small-scale) deployment/exercise to verify the idea's potential and/or to illustrate its feasibility. It should be noted that the competition is not looking for well-established programs with a large user base or extremely advanced initiatives.

Furthermore, FNTC recognizes that the digital divide is not solely a technical problem, and that innovation is needed to overcome many impediments to connectivity. Not being online could be

a problem of availability, affordability, or even appetite (cases when people do not use the internet even where connectivity exists). In order to address these challenges, the Connecting the Unconnected Challenge has created three subcategories within each track: submissions focused on innovative **Technology Applications (TA)** to increase broadband access or otherwise enable connectivity; submissions focused on innovative **Business Models (BM)** that result in increased affordability or innovative programs that increase demand; and submissions focused on innovative approaches for **Community Enablement (CE)** or the likelihood that populations choose to adopt available broadband access when previously they did not.

New in 2023
Thanks to new partnerships, we will have some additional prizes and funding opportunities for 2023 CTU contestants.

- In partnership with the United States Agency for International Development (USAID), the 2023 CTU Challenge will add a new prize for Best Overall Gender Inclusion Proof-of-Concept. This award will go to the Proof-of-Concept track contestant in any category (TA, BM, or CE) whose project or solution makes a significant impact or effort in closing the gender digital divide. Applicants will have an opportunity during Phases 2 and 3 of the competition to demonstrate how they have focused on gender inclusion within various key performance indicators (KPIs), and generally. In addition to the Best Overall Gender Inclusion Proof-of-Concept, standard winners in the Proof-of-Concept track have the opportunity to be recognized by USAID for their efforts in gender inclusion and have their prize paid directly by USAID. For more information on KPIs, be sure to read the Contest Rules document.

- Additionally, all Proof-of-Concept contestants who make it to Phase 3 will have the opportunity to submit an idea proposal for how they might further address the gender digital divide in the future. A select number of these proposals will receive additional prizes from USAID.

- In partnership with VMware and Mitacs, the 2023 CTU Challenge will add a new prize for Best Overall from Canada. In 2021, VMware, Mitacs and IEEE Future Networks partnered on Digital Equity Grid Innovation initiative in Montreal, also known as TETRA, which aims to advance applied research on sustainable grids, clean tech, and digital equity.

- After the 2023 CTU Challenge has concluded, all past winners of the Challenge (2021, 2022, 2023) will be invited to apply for a $100,000 research project funded by VMware and Mitacs in conjunction with IEEE Future Networks. Applicants are not required to be

based in Canada, but they would need to incorporate a business entity in Canada to receive the funding and conduct the research project. All Applicants who will submit Mitacs Applications for funding in collaboration with research partners will have to do so in accordance with the program guides found at https://www.mitacs.ca/en/programs. More information on eligibility and the research project expectations will be announced in the fall of 2023. For questions, you may contact Bernard Duval, Senior Advisor at Mitacs bduval@mitacs.ca

Why participate?

Cash prizes will be distributed to winners in the different tracks, with no individual award exceeding $10,000. Proof-of-Concept prizes are typically higher than Concept-Only prizes. Additionally, this program will provide awardees with opportunities for significant exposure from IEEE, and winning contestants will be invited to participate in a mentorship program, and may be invited present their solutions at the annual IEEE Connecting the Unconnected Summit, an event that will also include keynote talks, panels and other presentations from leaders in industry, governments, and NGOs.

Who can apply?

The competition is open to private sector companies or startups, nonprofits and grassroots groups, university projects, students, government organizations, any other organization or individual participants from anywhere in the world. Individual participants must be at least 18 years old.

Participants who represent underserved communities from low and middle income countries and/or the Global South are highly encouraged to apply.

Competition rules and expectations

The competition will be executed in three stages. In the first stage (Phase 1) participants will submit a short initial submission that includes a 500-word abstract describing their solution. Those who advance to Phase 2 will be asked to complete a second, more detailed online submission, to which applicants may attach additional supporting materials. In Phase 3 (final), a select number of applicants will be invited to present to our Selection Committee in a closed-door, live/virtual session with Q&A. The whole process is expected to last approximately 3 months from start to finish. Winners will be recognized at an awards ceremony during the IEEE Connecting the Unconnected Summit.

- During Phase 2, applicants will have the option to have their submission reviewed by the IEEE Standards Association, for potential standardization opportunities within their Rural

Communication program. This review is voluntary and has no bearing on the competition judging process.

- During Phase 2, applicants are encouraged to note any significant effort or outcome to bridge the gender digital divide. Guidance on how such information can be included during Phase 2 will be provided by IEEE.
- All finalists will be required to present their solution during a live/virtual session with the selection committee in September/October 2023.
- All finalists will be required to undergo a due diligence procedure in October to verify submitted information before the final ranking is determined.
- All winners/awardees will be required to create a video of their solution which can be posted publicly by IEEE. We do not envision this video as requiring any cost burden, and IEEE will provide recommendations for video creation.
- Some winners/awardees will be invited to present at the CTU Summit on December 4, 2023 in Kuala Lumpur, Malaysia. In-person attendance is requested for those who present.
- All winners/awardees will be required to provide updated information about their solution 1 year following the award date. However, IEEE will not conduct any follow-up audit.

Selected submissions may be encouraged or invited to publish in IEEE publications. Selected submissions may also be encouraged or invited to participate in IEEE Standards Association projects.

Award Criteria

The submissions will be assessed based on a number of technical and societal impact criteria. These will include novelty/innovation of the idea/project and relevance to the CTU topic, as well as scalability, sustainability (from a business/deployment perspective) and readiness of the proposed solution. The submissions will be also evaluated on their potential for inclusion, impact, efficacy and risk level.

Deadlines:

Phase 1 submission closing: July 10, 2023
Phase 1 notifications: Approximately one month later
Phase 2 submission: August 28, 2023
Phase 2 notifications: Approximately one month later
Phase 3 presentations: Early October through Mid October
Winner notifications: Late October
CTU Summit: December 4, 2023

Frequently Asked Questions:

CTU Challenge Website: https://ctu.ieee.org/
CTU Challenge contact email: ieee-ctu@ieee.org

- **Will I be required to spend the award money in accordance with a project plan?**

  No. This is prize money provided with the intention to foster innovation, not a project grant with expected deliverables. However, award winners will be asked to provide updated information on the outcome of their solution the following year.

- **Do all participants need to be over the age of 18?**

  Yes.

- **I'm concerned about sharing confidential information about my early-stage initiative. What will get shared publicly or even broadly within IEEE?**

  Our Selection Committee members commit to limiting disclosure of information you consider confidential. Participants may be asked, either in the submission template or in a closed-door session with the selection committee, to share information which participants consider confidential for the purpose of the committee. Such information will not be shared outside of this committee.

  Awardees will not be asked to share confidential information during the Summit, where winners will be publicly announced.

  All participants are encouraged to seek patent protection for their solutions.

- **My solution is very advanced; we have a vast number of users and are looking to increase our scale. Should I submit for the competition?**

  No. The purpose of the competition is to foster new innovation and early-stage work, not solutions in an advanced implementation phase looking to scale.

- **Does my submission need to be in English?**

  Yes

- **I am not an IEEE member; can I still submit a solution?**

  Yes

- **Do you favor sophisticated, well written applications from academics or highly technical organizations?**

  No. Innovations can come from anywhere, and representatives from rural areas or the Global South are highly encouraged to apply. Participants with innovations which are not technical in nature but innovative in other respects are encouraged to apply.

- **When will the prize money be awarded?**

  Following announcement of the winners, award payments shall be rendered.

- **What if my question is not answered here in the FAQ?**

  You can always email us via the contact information in the footer of this document.

About IEEE: The Institute of Electrical and Electronics Engineers (IEEE) is the world's largest professional association dedicated to advancing technological innovation and excellence for the benefit of humanity. IEEE and its members inspire a global community through IEEE's highly cited publications, conferences, technology standards, and professional and educational activities.

About IEEE Future Networks: The IEEE Future Networks Initiative (FNTC) was designed to help pave a clear path through development and deployment of 5G and the great potential it enables, while envisioning the landscape of connectivity and applications beyond 5G. Recognizing that networking is larger than a single technology, standard, organization, or region, FNTC is gathering the world's researchers, scientists, engineers, and policymakers from industry, academia, and governments to solve the challenges and reveal the opportunities associated with current and future networks. In 2019 FNTC created a working group called Connecting the Unconnected, which contributed a chapter to the International Network Generations Roadmap (INGR), proposing ideas whereby future network generation upgrades should have connectivity included as a standard, rather than considered as an afterthought.