IoT STUDENTS CLUB

IoT Students Club at the University of Florida Hosts:

IoT Design Competition 2025

Sponsored By: UF Warren B. Nelms Institute for the Connected World UNIVERSITY of FLORIDA

2025 IoT Design Competition

About Us

IoT Students Club, an official University of Florida organization affiliated with the Warren B. Nelms Institute for the Connected World, promotes the advancement of the Internet of Things (IoT) among the undergraduate and graduate populations at the University of Florida. Our organization encompasses all areas of the Internet of Things addressing many of the world's problems, including but not limited to public health, energy, education, and transportation. In this way, our student members can contribute towards creating secure, efficient, and connected communities. We host national IoT Design Competitions to showcase the IoT technology from student participants and their impact on our world. In addition, our organization provides workshops and training to students by partnering with IoT faculty and industry experts. Through our activities, the IoT Students Club seeks to encourage student participation in applying IoT technology to solve real-life problems and create further awareness about the enormous prospect of what IoT technology brings to our world.

2025 IoT Design Competition

About the Competition

The IoT Design Competition is an annual innovation challenge hosted by the IoT Students Club at the University of Florida in collaboration with the Warren B. Nelms Institute for the Connected World. Now in its fourth year, this competition invites students to design and develop intelligent, connected systems that address real-world problems using the Internet of Things (IoT).

The Fall 2025 competition is centered around the theme **"Secure and Smart"**, encouraging participants to develop solutions that combine advanced sensing, automation, or data-driven insights with strong cybersecurity and system resilience. Projects may focus on any domain — including public safety, healthcare, infrastructure, energy, or the environment — as long as they creatively integrate IoT technologies to deliver reliable, secure, and impactful outcomes.

Participants will form teams of **2 to 4 students** and may submit a project in either the **hardware** or **software** track. Projects in each track will be evaluated independently by a panel of judges, based on criteria such as innovation, technical complexity, usability, scalability, and real-world impact.

The competition is open to all currently enrolled **undergraduate and graduate students at universities and colleges across the state of Florida**. Teams are required to submit a short demo video and a one-page technical architecture summary outlining the design, implementation, and purpose of their solution.

In addition to promoting technical excellence, the IoT Design Competition aims to raise awareness about the importance of secure, resilient IoT systems, and to inspire the next generation of innovators in the field of connected technologies.

2025 IoT Design Competition

Problem Statement

"Design a secure and intelligent IoT solution that solves a real-world problem through innovation, technical skill, and awareness of cybersecurity challenges."

Participants are challenged to conceptualize and develop a smart, connected IoT system that addresses a meaningful real-world problem while prioritizing **cybersecurity**, **system resilience**, and **user safety**. The competition encourages original thinking, cross-disciplinary innovation, and responsible design in both software and hardware domains.

Each team will identify and define a specific IoT-related challenge in an area of their choice — such as public health, infrastructure, environmental monitoring, agriculture, transportation, or emergency response. Teams will research the problem, assess current limitations, and propose a **secure and intelligent IoT-based solution**.

The project should demonstrate both **technical competence** and **thoughtful design**. This includes considerations for **data integrity**, **fault tolerance**, **anomaly detection**, **secure communication protocols**, or **privacy-aware design** — as appropriate to the selected problem domain.

Teams will go through the full development lifecycle:

Problem Identification: Define a real-world challenge where an IoT system could offer measurable improvements.

Conceptual Design: Propose a secure and intelligent system that creatively addresses the challenge and aligns with the "Secure and Smart" theme.

Development & Testing: Build and test a working prototype (hardware, software, or both), iterating as needed to improve functionality and resilience.

Submission & Presentation: Deliver a 5-minute demo video and a 1-page architecture summary. The final product will be evaluated on innovation, technical soundness, usability, security considerations, and real-world impact.

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Note:

Live judging will take place during the Demos & Judging sessions at the Nelms IoT Conference **(December 4–5, 2025)**. Attendance is mandatory for all team members during the conference to be eligible for awards and final evaluation.

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Previous Competition Winners

Fridgigators

IoT-Based Fire Control and Notification System: A Smart Solution for Improved Safety

Low-cost human behavior monitoring system based on infrared array sensor

2025 IoT Design Competition

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