



Internet Science and Technology Fair (ISTF) Student Team Winners Announced

June 20, 2016

On behalf of the ISTF program and our institutional partner, the College of Engineering and Computer Science at the University of Central Florida, it is both my pleasure and privilege to announce this year's competition winners. Since the beginning of October 2015, pioneering teachers enrolled one hundred and forty-four student teams representing 542 students in grades 3-12. At the end of this year's competition, 69% of the student teams completed their final project websites that represented their research findings. Following the preliminary judging, 40 teams advanced to the final round of judging with eight student teams emerging to capture top awards in the 20th annual [Internet Science and Technology Fair \(ISTF\)](#). These student teams will be receiving "Meritorious Achievement" certificate awards from the Director of the ISTF program.

The ISTF program challenges students to research how [National Critical Technology \(NCT\)](#) applications may be used to solve real-world problems. They use information technology tools while adhering to guidelines based on national science content standards. Students develop critical thinking, research and reading/writing skills as they work on-line with practicing professionals and publish their four month research findings in a website format for preliminary and national rounds of judging.

The nine student teams won this year's highest honors include:

- One high school student team from Blaine High School in Blaine, Minnesota.
 - Their student team researched a design for a "portable, clip-on carbon monoxide detector" that would help to detect the presence of carbon monoxide in a home or other enclosed space.
- Three middle school student teams from Bergen County Academies in Hackensack, New Jersey.
 - One team researched how "Bionanoprobes" might be used as an efficient detection method to track genetic mutations throughout the body.
 - A second team explored how a possible "memory chip programmed with knowledge of motor skills" might be temporarily used to help patients that experience loss of muscle (neural-motor) memory.
 - A third student team investigated how "Nanocapsules" might be used to detect pancreatic cancer and apply treatments that are targeted specifically to the tumor.
- And finally, four student teams from Winter Park High School in Winter Park, Florida.
 - One student team explored the possible development of a "camera-based sensor" that may be used to monitor eye movement while driving and upon detecting insufficient focus, it would alert the driver.

- A second team researched how a new design for a classroom desk and chair may help students “spend more energy focusing on school and learning, rather than having their attention draw away due to back pains.”
- A third student team investigated if integrating infrared sensors on cars might be used in conjunction with a stoplight system thereby “allowing a car to come to a slow, safe stop”.
- A fourth student team focused their research on nutrient deficiencies and how a Bluetooth app might be used as a blood tester to “provide feedback, and alert a patient's doctor of any dangerous measurements.”

In addition, nine other teams earned Honorable Mention Certificates. All finalists, award recipients, and links to winning projects from this year and past years' competitions are viewable on the [Winners](#) page.

The ISTF challenges students to work as a team and learn how to communicate on a long-duration project. As seen below, the students learned some very valuable lifelong lessons.

By the magic of social media, everyone on the team was able to communicate and collaborate swiftly and effectively. The three of us were easily accessible via email, and during school. Email also came into play between team and teacher, as well as the technical adviser.

When we were unable to meet in person, we Facetimed each other. Google docs were used to share information and progress. Student-teacher communication was minimal, as we mostly used the ISTF website and the technical advisor for help and support. We emailed the advisor once a week and she always answered all of our questions.

The teaming and communication of our group functioned smoothly both within our group and with our teacher and technical advisor. Our group discussed what ideas we wished to utilize before finalizing our plan. Once this was done, we wrote the tasks as a group with a common goal, assuring that no concepts were neither understated nor emphasized.

Throughout our project, we, as a team, learned two priceless lessons: the significance of teamwork and communication. After dividing up the component tasks, it was evident that to present high-caliber work, we'd have to work together, proofread each other's tasks, and constructively help our group members. Our teacher helped us stay on schedule and offered insight. Connectivity helped us share insightful sources and feedback.

At the same time, students learned about what it means to engage in research that leads to innovating possible new products and processes. The following are some thoughts on what the students experienced via their project assessments.

This challenge forced us to move beyond our comfort zone and work extra hard to find reliable data. Through this process, we were able to learn the true depth in which one must go into to successfully research.

One of the first things that our team learned about research and innovation is that it required deep and thorough research of a field in order to fully understand the scope what the problem is. By doing deep and intensive research it is possible to see what other scientists have done in the field of research previously and any failed attempts that have taken place to solve the issue. We discovered that knowledge of the previous attempts towards similar solutions were needed, as the best science is done when built off of the others' shoulders.

On the innovation side of the project, we learned that innovation requires factoring in the practicality of the product. This means that we discovered that the cost of solving the problem we were trying to tackle may outweigh the cost of crashes due to red light running, but in the end, our innovation improves humanity by saving lives and that is what innovation should be about.

Nothing we thought up could have been proven without the research and connections we found in real life. We were able to turn an idea into a goal for the future. It was hard work to find all of the information needed to justify our project, but the extensive digging that we did to solve the problem at hand paid off.

In the end, it was the lessons learned that will make a difference in these students' lives.

Our team, through the stages of the ISTF project, has learned a variety of valuable lessons. Initially, our group saw the importance of good organization. Without it, the team would not work efficiently. Maintaining this pace required, as we had learned, communication. We needed to remain organized for such a large-scale project to come together. Finally, our team understood the value of creativity.

We also learned that we must be able to rely on our fellow group members to complete their respective tasks accurately and in a timely fashion, and conversely, as individuals, we learned that we must complete our work by the deadline set by our group so as not to let the rest of our group down. Thus, we all learned to take on specific responsibility and hold ourselves and each other accountable for accurate completion of various portions of the project.

In order to be successful in future endeavors, be open-minded towards ideas of other group members. When coming up with ideas for the project as well as the design, our group faced many problems, including conflicting ideas and thoughts. Eventually we realized that the only way to move forward was to evaluate the best of the options or finding a way to incorporate each idea.

Group projects always teach group members life lessons about working efficiently. We learned the importance of dividing labor and meeting deadlines, while keeping our group on task. Finally, creativity was a big part of the project. We had to think out of the box to find how our invention would benefit people.

Suffice to say the role of new and existing "pioneering teachers" cannot be overstated. Some have been with our program for 10+ years. Their continuing dedication has enabled generations of young students to live the ISTF experience. We are also most grateful to the many scientists, engineers and other technical professionals who shared their expertise and support. Their contributions in the form of technical guidance such as responding to student questions, assisting students in locating appropriate technical information and reviewing their final project websites were critical to the students' success. And finally a special "thank you" to the academic faculty, their students and practicing professionals who continue to support the ISTF preliminary and final rounds of judging. We are proud to report that some have participated for multiple years and provided invaluable insights to help improve the ISTF program.

The 21st annual ISTF competition officially starts in October 2016. Interested teachers, technical professionals and parents are encouraged to support students' interested in participating. Those who are new to the ISTF process should visit the [Newcomers Section](#) as it provides a good starting point to become familiar with our program.

The ISTF program wishes to thank our institutional partner, the University of Central Florida's College of Engineering and Computer Science for their continued support. We also acknowledge the many students, teachers, technical professionals and parents who participated in and supported this year's competition. In the final evaluation, we do this for the students who participated and wish them every success with their continuing education.

Bruce Furino
Director, ISTF
E-mail: bruce.furino@ucf.edu