WPAFB Educational Outreach

INSPIRING STUDENTS IN STEM

April 2022

K-12 STEM ENQUIRER

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In This Issue...

...Join Us Next Month

- **STARBASE 2.0**
- **International Science and Engineering Fair**

FIRST® Championship

Nearly 800 robotics teams from 43 countries were in Houston, Texas April 20-23, celebrating the conclusion of the 2021-2022 FIRST robotics season at FIRST Championship! Among these teams competing for various awards and the title of world champions, were 4 teams affiliated with WPAFB Educational Outreach Office:

FIRST LEGO League team 50927 Positive Protons from Aurora (Ohio's state championship winning team).

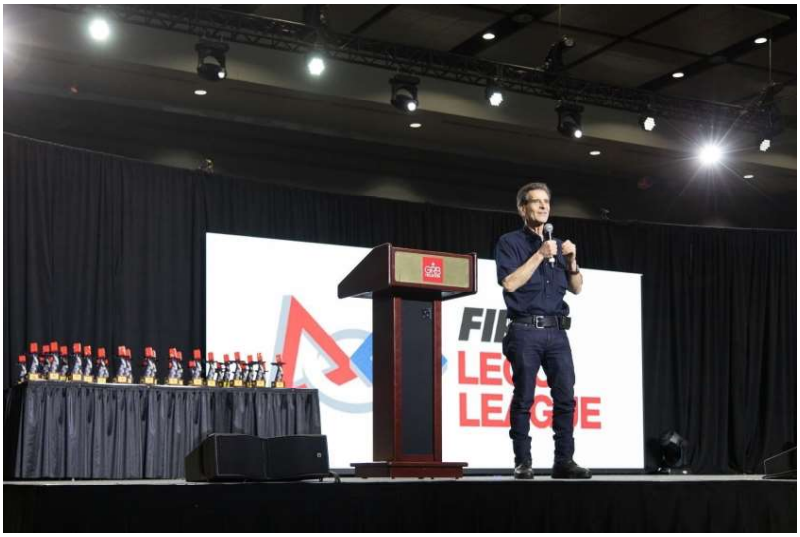
FIRST Tech Challenge teams 6133 The Nuts! From Walnut Hills High School (Ohio's Inspire Award winning team), 10464 The Bionic Tigers from Loveland High School (qualified as Kentucky's Inspire Award winning team), and 17978 Robo Kai from Bishop Fenwick High School (qualified as the top performing robot at the Ohio Championship).

The teams performed admirably, competing against other Championship teams from around the world, representing Ohio well as they competed in robot game matches and were evaluated by judges on a variety of topics including robot design, the engineering design process, innovation, outreach, teamwork, and more. Our Ohio Championship winning FIRST Tech Challenge team, 6133 The Nuts!, was recognized as a Finalist for the Control Award which celebrates a team's use of sensors and software, along with innovative thinking to consistently solve game challenges. What an accomplishment!

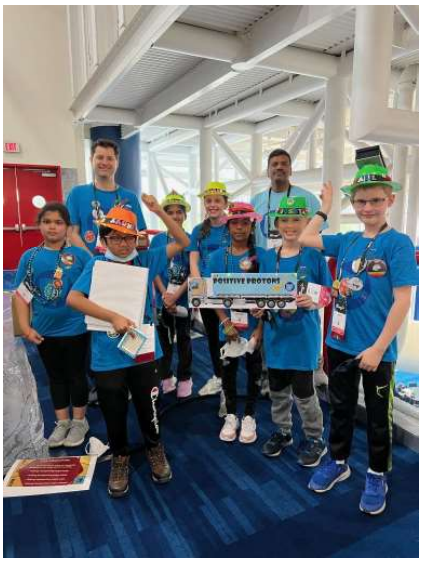
In addition to these WPAFB affiliated teams, 6 Ohio high school FIRST Robotics Competition teams were competing at the World Championship: 695 Bison Robotics (Beachwood), 1787 Flying Circuits (Pepper Pike), 2252 Mavericks (Milan), 4028 Beak Squad (Cincinnati), 4611 Ozone Robotics (Lewis Center), and 8037 VW Cougar Robotics (Van Wert).

Qualifying to compete at this level is an incredible distinction and an opportunity, and we are so proud of the accomplishments of all of these teams. At the close of the event, FIRST released a teaser for the 2022-2023 energy-themed season and teams are excited and energized to get started on the new season's challenge!

FIRST® Championship Photos

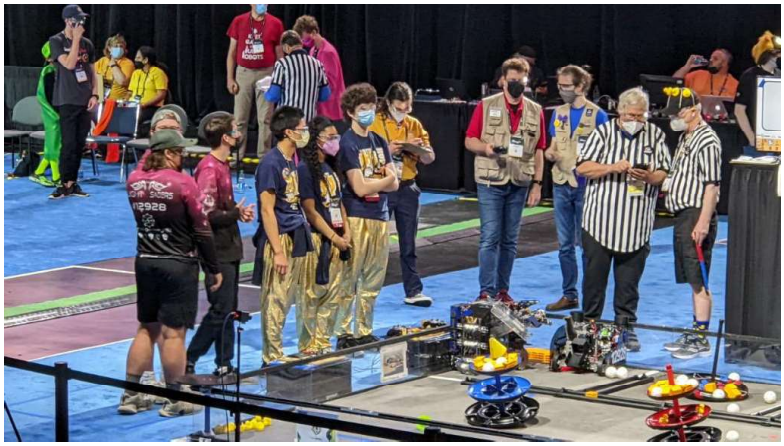


Left: Dean Kamen, founder of FIRST, addressing FIRST LEGO League teams during their awards ceremony

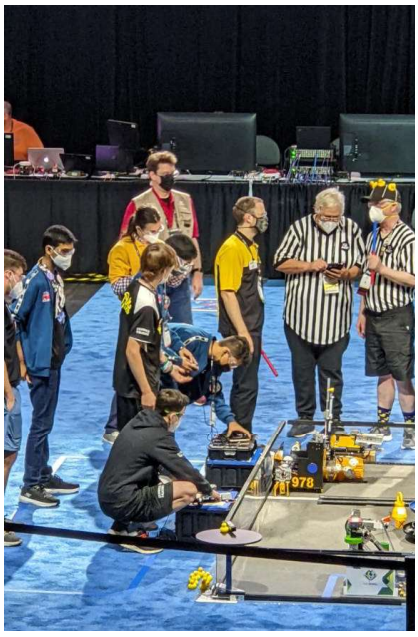


FIRST LEGO League team Positive Protons

FTC Team 10464 The Bionic Tigers in their team's pit



FTC team 6133 The Nuts! waiting on the results of their match (with Ohio Head Referee Paul Smith officiating the game!)



FTC team Robo Kai at the competition field (with another Ohio Head Referee Paul Smith sighting!)

Full awards list available here: https://www.firstinspires.org/about/press-room/youth-robotics-teams-inspire-at-championship-in-houston?msclkid=dad9933fc68b11ec950b6f86b77c39bc

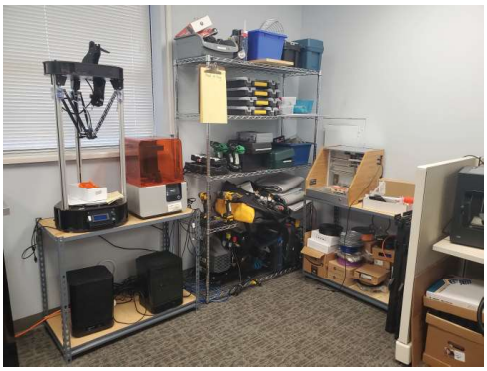
2022-2023 season reveal video: https://youtu.be/m-qwsMmkFwg

Educational Outreach Makerspace

The WPAFB Educational Outreach Office has reopened a makerspace in Building 196 with more space available to get projects done! The makerspace offers the opportunity for students in EO programs to utilize a wide variety of tools to design, explore, and build solutions to the Air Force's most troubling problems. The makerspace has dedicated space for detailed electronics work, to include soldering and wiring. Arduinos and Raspberry Pi single board computers are available and can be found in the stocked electronics station.

Overview of the Educational Outreach Makerspace

Fully Stocked Electronics Workstation



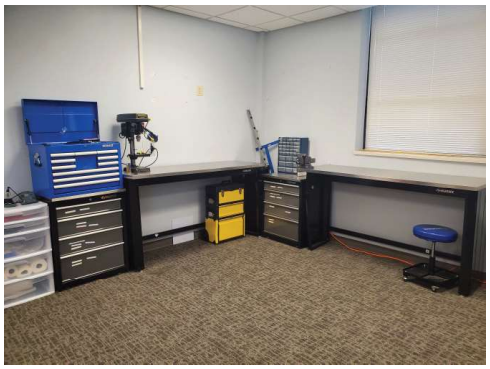
3D Printers and Various Hand Tools

The makerspace also contains several 3D printers for students to use to create parts for their summer projects. These projects will require students to design and draft a solution to an assigned problem and then construct a solution. The 3D printers allow for quick prototyping of a design solution.

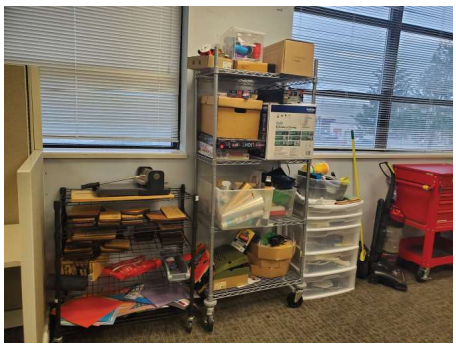
To support the construction of a design solution, there is also a full complement of various hand tools for use which will allow students to fabricate their solution from wood, metal or 3D printed parts, as needed by their design. Before using the tools, if it is needed, students can receive safety training on the equipment they plan to use to ensure they are following good shop safety practices .

Textile based electronics and fabrics can be utilized with the embroidery machine and assorted sewing supplies allowing students to design and construct human performance monitoring devices.

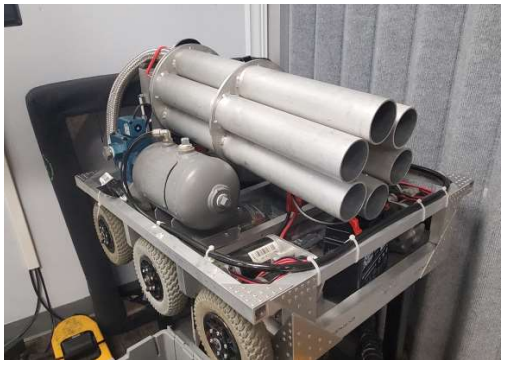
The robotics programs of the Educational Outreach Office will also use this space for maintenance of their robots. The robots will range in size, from small 6 inch sized robots, to the large 6 wheeled T-Shirt Launching Robot seen here.



Plenty of Space to work



Paper and Textile Materials including an Embroidery Machine



T-shirt Launching Robot Waiting for Repairs