



2019 Hampton Roads TECH RAMP Competition

On Saturday April 27, 2019 five high school teams assembled at Thomas Nelson Community College to participate in the first annual Tech Ramp Competition. HR TECH RAMP was the product of a regional collaboration between New Horizons Governor's School for Science and Technology in Hampton, and the Hampton Roads Innovation Collaborative (HRIC).

What is the Hampton Roads TECH RAMP Competition?

HR TECH RAMP is an engineering contest for regional high school students who will identify a business problem to be solved by a fabricated device, and through CAD, Mod Sim and hardware prototyping, demonstrate the solution. Business problems can be from any industry sector: ship building, drones (air, land, sea), logistics, maritime, tourism, any hardware- or materials- based business.

HR TECH RAMP Structure

- The program ran Feb-Apr 2019.
- Team size maximum 6 members.
- On April 27, 2019, teams will gather at Thomas Nelson Community College in Hampton VA from 1-4p to;
 - Assemble their solution in the location.
 - Deliver their presentation to judges.
 - Demonstrate their solution.
- Teams will be given up to 30 minutes for all communications and demonstrations, with Q&A

HR TECH RAMP Design Challenges

The ideal design entry would be a complex hardware/software/design solution to a business or societal problem. Challenge Examples:

- 1) A system to count and record the revolutions a freely rotating body.
- 2) A wearable system to provide auditory or tactile directions for the visually impaired to walk to a desired urban location.
- 3) A system to provide directional auditory awareness, sound recognition, and annunciation for driverless vehicles, such as a passenger car.
- 4) A local air hazard warning system to detect the occurrence, severity, and diffusion of harmful pollutants in an urban setting.
- 5) A proposal to pursue a business-sourced problem of the team's choosing.

HR TECH Team and Project Contestants

- 1) Decibel Monitoring Headphones – Client Impact Designs from New Horizons Governor's School for Science and Technology (GSST).
- 2) Smart Stylus - GEDANKEN TEAM from New Horizons Governor's School for Science and Technology (GSST).
- 3) Distance Sensing for the Visually Impaired – Packer Productions from – Smithfield H.S.
- 4) Smart Library - Clean Energy Library from New Horizons Governor's School for Science and Technology (GSST).
- 5) GPS Glasses - Landstown Jags from Landstown H.S.

HR TECH RAMP Categories and \$2,300 in prizes available

- Best Solution Idea: \$500. The concept developed to solve a business problem via engineering.
- Best Design: \$500. The best use of CAD, Mod Sim, or other emerging technologies.
- Best Build: \$500. The best use of prototyping technology (electrical, metal, wood) tools.
- Best Overall Project: \$500. Best incorporation of other award criteria (and winner of at least one).
- Design Process was weighted 80%.
- Design Presentation was weighted 20%.

HR TECH RAMP Award Recipients

- 1) Best Solutions – Decibel Monitoring Headphones – Client Impact Designs from New Horizons Governor’s School for Science and Technology. Cash Prize \$500.
- 2) Best Design – Smart Stylus - GEDANKEN TEAM from New Horizons Governor’s School for Science and Technology. Cash Prize \$500.
- 3) Best Build – Distance Sensing for the Visually Impaired – Packer Productions from – Smithfield H.S. Cash Prize \$500.
- 4) Best Overall Project - Distance Sensing for the Visually Impaired – Packer Productions from – Smithfield H.S. Cash Prize \$500.
- 5) Up and Comer – GPS Glasses - Landstown Jags from Landstown H.S. Cash Prize \$150.
- 6) Environmental Impact – Clean Energy Library from New Horizons Governor’s School for Science and Technology. Cash Prize \$150.

HRIC Thanks All Team Members and Participants

- Thanks to our very impressive teams and their faculty leaders.
- Thanks to the team parents for supporting their kids.
- Thanks to Thomas Nelson Community College who graciously offered their facility to us...Mike Kuhns (TNCC Vice Chair), Seyed Akhavi (TNCC Dean – Science, Engineering & Technology), Stephen Foster (TNCC - Adjunct Instructor Information Systems Technology)
- Thanks to our ODU Engineering Students for any help they could offer.
- Thanks to our judges and mentors: Brad Scott (Cetan Corp), Mary Kaszubowski (ODU Institute for Innovation & Entrepreneurship), Beau Turner (757 Makerspace).
- Thanks to the HRIC Board for their support in the creation of this program.
- And a special THANKS to Vikki Wismer, Director and Steven Walk, Physics – Engineering Teacher from New Horizons Governor’s School for Science and Technology as it was collaboration with them that created and launched the program.

Regional Tech Expo Visibility

HRIC will provide space at the Regional Tech Expo (Sept 2019) for any team who would like to demonstrate their solution to the attending business audience.

Judges will have a detailed scoring rubric with descriptive words for each level of achievement under each competition criterion, per classical rubric design.

For more details about the TECH RAMP program or to sign up a high school for the 2020 TECH RAMP, contact;

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April 27, 2019 TECH EXPO Pictorial



