Academic Magnet High school

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Media Release

Academic Magnet Robotics Team Wins First Place in Engineering Design at SeaPerch International Competition

NORTH CHARLESTON, SC – Academic Magnet High School's (AMHS) Robotics Team won first place in the Open Class Engineering Process and Design category in the 2019 SeaPerch Challenge held at the University of Maryland on June 1-2, 2019.

Team members included Gage Gailbreath, Stephen Hilton, Daniel Killough, Angela Li, John Paradise, and Bohan Wang.

"As teachers, we have standards, curricula and proven programs that we follow, but it is these kinds of real-world projects that evolve students into scholars," said physics teacher and AMHS robotics team sponsor/coach, Maria Desbrow. "My kids are seriously smart."

Organized by RoboNation, the international SeaPerch competition presents an opportunity for high school students to learn about STEM-related fields by creating an underwater remotely operated vehicle (ROV).

The competition challenged students to have an ROV that executes rescue operations.

Using SeaPerch kits, a Nanoline controller, Arduino boards and sensors, AMHS Robotics Team members created an autonomous system of underwater rovers complete with infrared sensors and GPS technology. The system allows the small vehicles to detect and avoid debris, while simultaneously identifying and pinpointing possible rescue persons and locations within bodies of water.

The team built two rovers: a smaller scouting bot, which was half the size of a normal SeaPerch kit that was outfitted with sensors to record information; and a Search and Rescue bot, the normal size for a SeaPerch kit, that has a malleable hook to pick up and move objects within the rescue and recovery course.

Over 2,000 middle and high school teams competed over the past year throughout the United States. Two hundred of these groups advanced to face international

teams from four countries to compete in three categories of speed and agility, rescue and recovery, and engineering process and design.

AMHS competed in the regional competition held in Charleston against 30 teams in March of this year, then advanced to the international challenge.

Although the AMHS robot performed respectably in the obstacle and mission courses, the judges were most impressed with the engineering process and design the students created.

While the team's automation system appears to be very sophisticated technologically, the rover itself was physically built using recycled pool noodles, a coat hanger, and a pencil on top of the basic SeaPerch kit. The rover looked so simple that, during the question and answer portion of the presentation, judges remarked, "On one side, we have NASA, and on the other is what you can find on the floor."

As the typical SeaPerch robot is made using no more than $25 beyond the original SeaPerch kit, the team decided to follow that general low-budget model, with added technology.

"We found that the more complex we made the rover from stock in terms of our design, the more problems we had with it," said Killough.

"We decided to devote more time to making the automation run more efficiently than making the rovers look nice. Simple is best, and that was proven through this competition," added Hilton.

The students not only learned about the process and challenges of creating an ROV but how their work can go in solving real-world issues.

"The 2019 SeaPerch Challenge mission was inspired by the real-life events of the 2018 cave rescues in Thailand," said Academic Magnet High School Principal Catherine Spencer. "AMHS students know firsthand the threats and dangers of rising waters and worked together to create a rover capable of navigating not just a cave, but possibly a Lowcountry waterway or flooded street to assist with search and rescue efforts. We are proud of their achievement as well as their desire to create a device to improve their community and world."

The Academic Magnet Robotics Team was sponsored by Academic Magnet's Partners In Education Foundation, the CCSD Laura Brown Fund, and Phoenix Contact.

For more information about Academic Magnet High School and SeaPerch, visit https://amhs.ccsdschools.com and https://www.seaperch.org/about.

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Photo Caption

The 2019 Academic Magnet Robotics Team with their First Place Engineering Process SeaPerch Trophy: (l to r): David Young, SeaPerch Challenge Technical Director, RoboNation, Daniel Killough, Angela Li, Gage Gailbreath, John Paradise, Bohan Wang, Stephen Hilton, AMHS Physics teacher and Robotics team Sponsor/Coach, Maria Desbrow and Lindsey Groark, STEM Programs Director, RoboNation).

About the Charleston County School District

Charleston County School District (CCSD) is the second largest school system in South Carolina representing a unique blend of urban, suburban, and rural schools spanning 1,300 square miles along the coast. CCSD serves more than 50,000 students in 86 schools and specialized programs. With approximately 6,100 employees district-wide, CCSD is the fourth largest employer in the region.

CCSD offers a diverse, expanding portfolio of options and specialized programs, delivered through neighborhood, charter, magnet, IB (international baccalaureate), and Montessori schools, and is divided into three Learning Communities. Options include specialized programs in science, engineering and mathematics; liberal arts; music and other creative and performing arts; career and technical preparation programs; and military and other public service enterprises.