GEARS, Inc

General Engineering And ROV Specialists

Eastwood Schools | Montgomery, Alabama, USA

Corporate Responsibility

2024 MATE World Championship

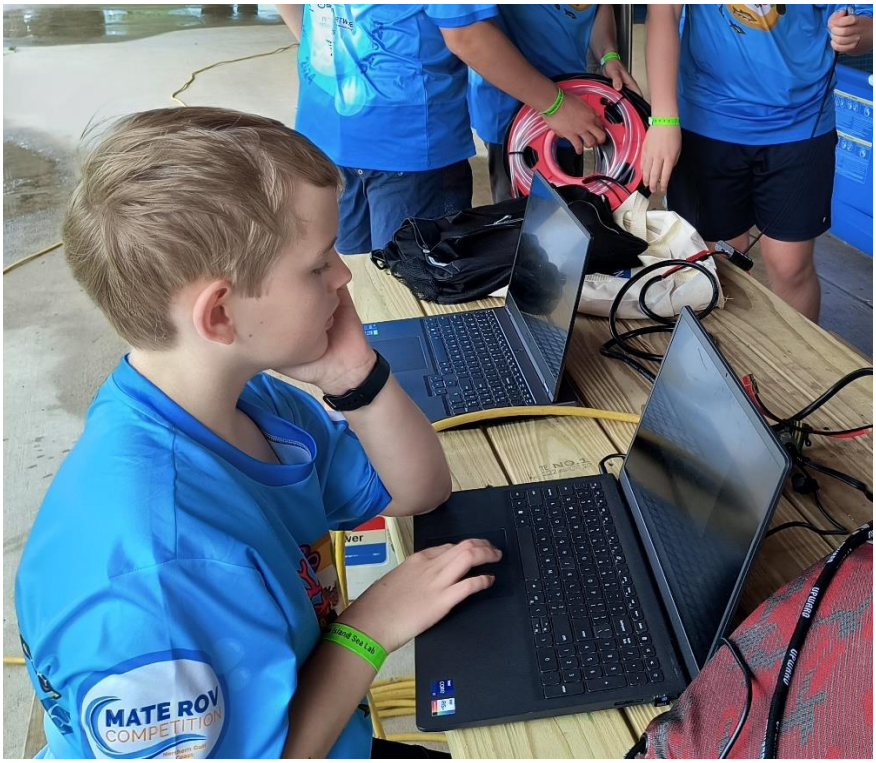
Mentor: Arthur Lee Sumner

CEO: Caleb Anglin 2nd year
President: Nickolas Schmidt 2nd year
CTO: Jacob Shaffer 2nd year
Marketing: Rachel Smith 1st year
Programmer/CAD Designer: Grady Smith 1st year
Tether Operator: Jonathan Pace 1st year

Mentoring

During the regional competition at Dauphin Island Sea Lab (DISL), GEARS members aided the Pensacola Catholic High School Crubotics team by helping them resolve their ROV camera streaming problems, as well as showing them how to dynamically control their motor speeds with QGroundControl's gain function. Team members also mentored the Alma Bryant High School Fission JIG team by sharing information on marketing materials and details about producing a team T-shirt. In addition to mentoring other teams, GEARS strives to build up the next generation of STEM students. This is currently being accomplished by having a 7th grade student as a member of our Ranger class team.

Results: By aiding other teams through sharing resources and ideas, GEARS can build connections and relationships with fellow students. This collaborative effort fosters future friendships and allows all teams to excel. Fission JIG, one of the teams GEARS mentored, reached out through our website to gain more information and insights from GEARS to help improve their performance next season. Having a middle schooler involved in our team allows us to teach and mentor him alongside older and more experienced team members. In addition, he has become a productive and necessary member of our team, gaining confidence and skills in programming and CAD design.



Grady Smith, 7th grade member of the GEARS team, working during the DISL Regional Competition.

Engaging the Community

GEARS had the opportunity to attend three homeschool outreach events in August 2023. These events included the Elmore County Homeschool Organization (ECHO), the Fellowship of Home Educators (FHE), and Ezekiel Academy. During these events, team members from GEARS represented both the BEST Robotics and MATE ROV competitions when answering questions and providing information. GEARS members gave demonstrations with previous years' robots and coached interested students on how to operate them. Forms were available with information on both the BEST and MATE competitions, as well as giveaways and brochures. Additionally, our sponsorship form featured information on both our BEST and MATE teams. Investors were invited to visit our workshop for product demonstrations and to observe our operations.

Results: GEARS was able to foster interest in both STEM and MATE by engaging with students and parents. Allowing students to operate our robots sparked their desire to learn more about STEM and robotics activities. GEARS also received contact information from interested parents to keep in touch with potential new members. Including both MATE and BEST on our sponsorship form encouraged potential investors to partner with both teams. Three investors accepted the invitation to visit our workshop, allowing us to further develop a relationship with our sponsors and learn valuable experience from them. Seeing how their donations were being utilized gave them confidence in their sponsorship choice.

Left: *A member of team sponsor AFCEA visits the GEARS workshop, 2/15/24.*

Right: *Team sponsor JAS Architecture visits the GEARS workshop, 3/14/24.*

***Top Left**: ECHO, 8/4/23. **Top Right**: FHE, 8/10/23. **Bottom:** Ezekiel Academy, 8/24/23.*

Media Outreach

GEARS utilizes its website and social media platforms to promote the MATE ROV Competition and to reach a wider audience. Social media interactions include posting highlights of work progress, team activities, and competition results, as well as engaging with comments and direct messages. The GEARS website also provides more information on the MATE ROV competition through links and video, as well as offering another form of interaction through the contact page.

Results: Facebook, GEARS' largest social media account with over 160 followers, reaches a wide audience with its posts and fosters interest and awareness in STEM and MATE activities. Facebook also brings in potential new members, with three interested parents reaching out through direct messaging. Additionally, a team from the regional competition at DISL reached out through our website contact form to request mentoring.

https://www.gearsincrobotics.com/mate_rov

@gearsincrobotics **@gearsincrobot**

Raising Awareness of Societal/Environmental Issues

As a team, GEARS strives to learn and understand environmental issues and reduce our impact on the planet. GEARS' workspace has solar panels installed, allowing the utilization of solar energy to recharge robot batteries. Our MATE ROV competition poster includes information on Environmental, Social, and Governance (ESG) issues, highlighting how ROV involvement can reduce these issues and create a better environment. Additionally, our 2024 team T-shirt features three endangered species, as well as coral reefs which face habitat loss. Our ROV's name, Vaquita 2.0, highlights a fourth endangered ocean species. By having our regional competition hosted at DISL, our team was fortunate enough to attend a beach walk with instructors and learn about the effects of beach erosion, the importance of sand dunes, and the importance of beach sand as habitat for wildlife such as ghost crabs. Our Facebook page was used to further raise awareness by highlighting the United Nation's Ocean Decade and 10 Challenges relating to the MATE Competition.

Results: Using the resource of solar energy reduces our team's environmental impact and reliance on unsustainable energy sources. Featuring endangered species on our T-shirt raises awareness of ecological issues and inspires action to reverse the damage caused by habitat loss and degradation. From learning valuable information about the importance of beach ecosystems at DISL, our team gained a greater understanding and appreciation for these habitats, inspiring each member to make personal efforts to value our beaches and natural resources.

The GEARS team attending the beach walk at DISL.

2024 GEARS Team T-shirt, featuring lake sturgeon, manatee, sea turtles and coral.

Eastwood Schools Robotics Teams

Partner with us for 2023-24

What is BEST?

Boosting Engineering, Science, and Technology (BEST) is a middle and high school robotics competition whose mission is to engage students in Science, Technology, Engineering, and Math (STEM) and inspire them to pursue STEM careers. Students work in a real-world engineering environment to design, build, and test a robot while running their own "company." Participants in BEST commit to an intensive eight-week program where students compete with their robot, give presentations, build a team exhibit, and document everything in an engineering notebook. BEST teams are given all the materials they can use and need to build their robot. Students in the BEST program have a sense of pride in their accomplishments while having a lot of fun. More importantly, students learn a great deal about leadership, engineering, teamwork, problem solving, and communication.

What is MATE?

The Marine Advanced Technology Education (MATE) ROV (Remotely Operated Vehicle) Competition is a high school and college program that takes BEST students to the next level. Students have four+ months to research, design, build, test, and demonstrate their ROV. They also produce technical documentation, an engineering presentation, a marketing display, and a company spec sheet. Requirements are much less strict than BEST with all materials being procured by the students. Participants gain additional experience with material, electronic, and marine engineering.

About GEARS

General **E**ngineering **A**nd **R**obotics **S**pecialists is a team made up of middle and high school students from several schools and homeschools in the Montgomery, AL area. The team desires to learn not only educational lessons but also life lessons such as teamwork, leadership, and problem solving. The end goal of the team is to glorify God in everything they do as exemplified in their team verse, Colossians 3:23: "Whatever you do, do your work heartily, as for the Lord rather than for men."

2022 GEARS Robotics Team (13 students)

History and Awards

GEARS has competed under different names for thirteen years since 2005 and continues to teach students valuable life skills while doing its best to glorify God. They have received over 135 awards including:

- 14 Overall BEST/MATE Awards
- 9 Head-to-Head Robotics Awards
- 12 Engineering Notebook Awards
- 14 Team Exhibit & Interview Awards
- 10 Marketing Presentation Awards
- 6 Spirit & Sportsmanship Awards
- 9 Most Elegant Robot Awards
- 9 Most Robust Robot Awards
- 3 Founders Creative Design Awards
- 4 Most Photogenic Robot Awards
- 11 T-shirt Design Awards
- 13 Website Design Awards
- 5 CAD Design Awards
- 1 Best Mascot Award
- 3 Igus Top Gun Awards
- 6 Simulink Design Awards
- 7 Other Software & Design Awards

Incision Decision

On September 7th, 2023, the BEST competition, "Incision Decision," will begin and the team will receive their materials and requirements. They will then have eight weeks to complete their robot and market it. In December, the requirements for this year's MATE ROV competition will be released and the 4+ months of ROV development will begin. GEARS has a history of success and plans to continue that record this year for BEST and MATE.

2022 GEARS R13C Mercury Robot

Sponsor Us

Generous sponsors help us to be successful by providing funds for robot parts, game field materials, T-Shirts, team exhibit materials, promotional items, and more. We'd love to have you partner with us this year so that our team can once again face the challenges of the competition. Donations in any amount help with the following levels receiving the below premiums:

Contributor Level **$100**
- Recognition in Exhibit & Publications

Bronze Level **$200**
- Add Basic Recognition on Team T-shirt

Silver Level **$400**
- Add Standard Recognition on T-shirt

Gold Level **$700**
- Add Premium Recognition on T-shirt

See Back for Sponsorship Form and Where to Send Your Sponsorship. Thank You!

2023-24 GEARS partnership information for both BEST and MATE teams.