

# ROBOTICS

*a newsletter about IMSA's FRC team*



## IMSA Updates - Interession

*By the FRC Business Team*

Interession week is a unique aspect of our school where IMSA students are given the opportunity to take various classes of their choice outside of the traditional realm of academics. In past years, since this week is held right after winter break and aligns with the start of the FRC season and the game release, the Titan Robotics team has held our own Interession for our members. During Interession, our members usually prototype models in the lab and plan strategy for the robot games. However, this year, like last year, our school has decided to hold Interession online, and our members will be at home and spread out across the state.

Despite being remote, our team still plans to hold an Interession for our members. We can still review the game manual and plan strategy, and instead of making physical prototypes, our members will spend their time making CAD models, which we will create in the lab once we return to campus partway through January.

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## Mechanical & Electrical

The mechanical and electrical sub-teams have spent this last month training their members in skills such as CAD, prototyping, tools, and machining. Last week, they started Mock Build Season in order to prepare their members for the real build season in January, which is especially important since many of the team's members did not get to experience robotics in-person last year. For Mock Build Season, mechanical and electrical members are using the robot game from 2018, Power Up, as a reference and are building prototypes and coming up with strategy as if our team is competing in this game. They are currently working in small groups in order to design robot mechanisms to complete specific game tasks.



## Design Integration

For the past month, Design and Integration Team has been going through training on many design topics and CAD skill, such as designing gearboxes and using parametric design to define their models. Design has also been preparing for the upcoming Mock Build Season by looking through designs in past years and going over common designs. Finally, Design has been participating in a series of Speed CAD competitions to practice CAD skills and increases modeling speed. For one of their Speed CADs, the Design Team raced to design a specific type of gearbox the fastest. For the rest of pre-season, Design will be learning a few more CAD topics, learning how to use the Shopbot CNC machine and participating in the Mock Build Season.



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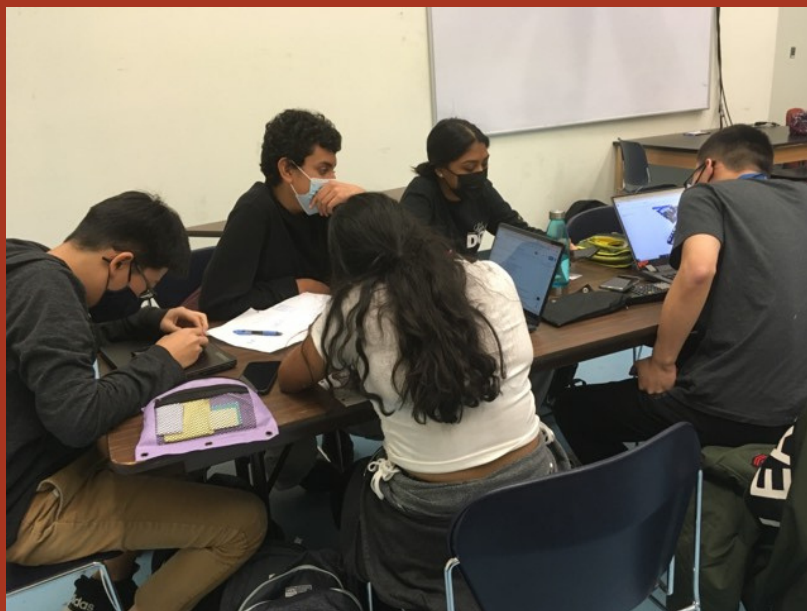
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## Programming

The programming sub-team has been working on several algorithm projects in different groups. One group is figuring out how to program cameras to sense the field, and another is learning to use depth sensing in order to track objects. The team has also been trying to improve their path-finding methods. Additionally, the programming subteam is participating in this year's Mock Build Season, and they will be coding paths for the robot for the autonomous part of the mock game, as well as coding mock controls for the tele-op portion.



## Software

The Titan Software team has been continuing their work on updating and generalizing the software for their app in order to make it more accessible to others. They are also still working to increase modularity and API compatibility between all of their software. As next season's release approaches, they are preparing to code the new game rules into the scouting app to allow the Titan Robotics team members to collect data during robot game matches during competitions. The Titan Software rookies have been studying the code from the apps of previous years' games in order to prepare for the game release. The app will then be able to analyze statistics collected from all of the teams during competitions using machine learning algorithms and will be able to determine the teams and robots that are most compatible with ours.

The Software team has also been participating in the team PWNAGE's Scouting Palooza competition this past month. They recently submitted their application for the Innovation award, and the decisions will be released in January. For more information on the competition, visit this site:

<https://www.pwnagerobotics.org/scoutingpalooza>

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## Business

The business team has been working hard on getting merchandise for the Titan Robotics team. This year, the team is planning on getting jerseys so as to stand out at competition and look more professional. The business members have been looking at different companies and comparing designs to create the most reasonable price for all team members.

Recently, a budget meeting was also held which discussed our current financial state and what funds the team need for future endeavors. With the Titan Robotics board members, they set a budget for this upcoming season. The business team is currently researching grants in order to increase the team's funds. Business has also been regularly posting on social media in order to document the season and raise team spirit.

Titan Robotics also tries to volunteer and help our community. The business team has been working closely with the program Girls IN2 STEM, a program designed to help young women learn STEM skills, to plan an event this December that will teach the mentees about robotics. Several members of the team also volunteered for a FIRST LEGO League (FLL) tournament, which will be held in December. FLL, a program which is run by the same organization as FRC (the program that Titan Robotics competes in), fosters the knowledge and critical thinking skills of elementary and middle-schoolers interested in robotics. The team members cannot wait to volunteer next month!



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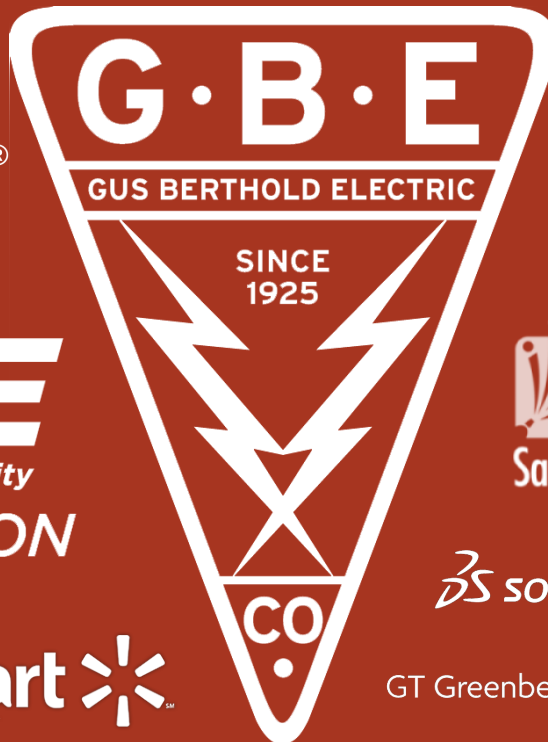
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**THANK YOU FOR READING!**

Look out for the December issue next month!

