

JUNIORBOTS

AWT FOUNDATION

GUIDE TO JUNIORBOTS

COMBAT THE SKILLS GAP

OUR MISSION

TO PROMOTE

REWARDING

MANUFACTURING

CAREERS FOR THE FUTURE OF
OUR COMMUNITIES

 **@AWT RoboBots**
www.awtrobotbots.com

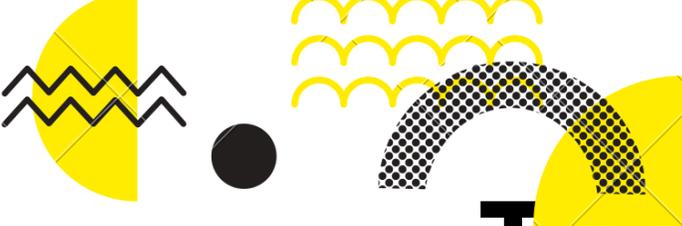
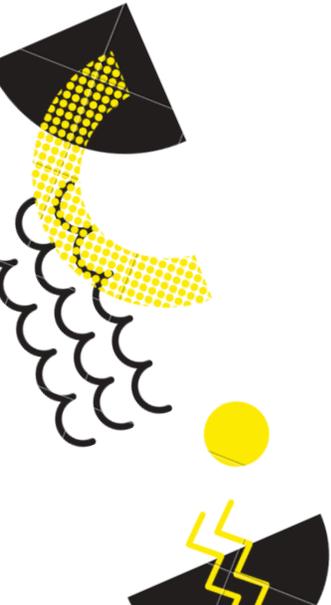


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WHAT IS JUNIORBOTS?



JuniorBots is the middle school version of the AWT Foundation's signature program.

JuniorBots is a middle school combat robotics competition that allows middle schools to partner with industry mentors to build a 3lb combat robot.

The industry partner provides financial assistance and mentorship to the middle students through the six-seven month robotic build process. This program is used as a way for local manufacturers to mentor local talent. Most JuniorBot students continue on to the RoboBots or high school combat robotics competition.

This educational and workforce initiative was started by the AWT Foundation. The AWT Foundation promotes rewarding manufacturing careers for the long-term sustainability of manufacturing.

Check-out our JuniorBots & RoboBots trailer:

<https://www.youtube.com/watch?v=bxUQxihpwL0&t=2s>

JUNIORBOTS COMPETITION DAY



DATE

Competition day is for both RoboBots (high school students) and JuniorBots (middle school students). This event always takes place on the last Saturday in April. **This year, that is April 24th, 2021**

LOCATION

Lakeland Community College (7700 Clocktower Dr, Kirtland, OH 44094-5198) Auxillary Gym (Building Y).

Here are some of the local hotels/lodging options for traveling teams:

https://www.tripadvisor.com/HotelsNear-g50517-d8266249-Lakeland_Community_College-Kirtland_Lake_County_Ohio.html:

TIME

The competition day takes place from 8am-5pm. This is a double elimination competition, so students may need to spend all day here depending on how well their team competes against other teams. **JuniorBot Teams should arrive around 9:30am-10am. Before your team competes, our safety check person will check that your JuniorBot meets all safety standards before battle starting at 10am. JuniorBot battles begin around 11am-11:30am.**

LUNCH & CONCESSIONS

Students participating in JuniorBots will receive a lunch waiver. Lunch normally consists of a water, sandwich or hot dog, and an additional small snack. Lakeland Community College's concessions will be open from 9am-4pm and open to the public.

EVENT PARKING & ADMISSIONS

Parking is free and within walk distance to Lakeland Community College's athletic building. This event is free and open to the public.

SPECIAL GUESTS

As the largest regional robotics competition and a well-known workforce initiative in Ohio, we normally have a few special guests throughout the day including local politicians and celebrities throughout the day.

WHAT DO I NEED TO START A JUNIORBOTS TEAM?

JuniorBots Coach: The JuniorBots Coach could be a teacher or parent who will be responsible for the administrative aspects and behavioral aspects of the team. See page 5 for more information.

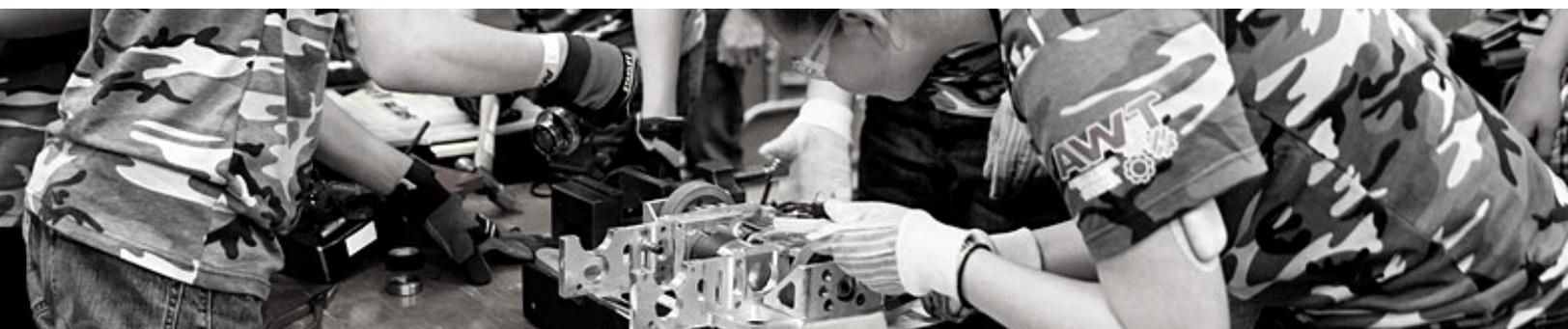
A Company Sponsor: A company sponsor will commit to meeting the financial needs of the team. See page 6 for more information.

Industry Advisor: From the company sponsor, we hope that the company can identify a technically inclined person who is comfortable working with tools to meet with the JuniorBots Team during their schedule meeting times (normally two hours per week from October until April). If using the FingerTech Viper Kit, this comes with instructions for the industry advisor to follow. See page 7 for more information.

Space: If you are a new team, space is key. Please designate a place for your team to meet. Normally a STEM lab or if you are a technical school, a CNC Machining room is the best place to meet. If you do not have those resources at your school, please communicate with your Industry Advisor, because you may need them to bring tools to your classroom or your sponsor company may allow you to work in their facility

Personal Protective Equipment (PPE): Students must wear gloves when working on their robot. Students must wear safety glasses when appropriate. If your company sponsor cannot supply safety glasses and gloves, the AWT Foundation can provide you with PPE. We also recommend purchasing a plastic container with a lid for transporting your RoboBot to and from the competition.

Communication: With so many organizations involved in this program, it is important for the Coach and Industry Advisor to keep each other informed of upcoming due dates, meeting dates, etc. If there is a team issue, please let a member of the AWT Foundation know. We will try our best to resolve it.

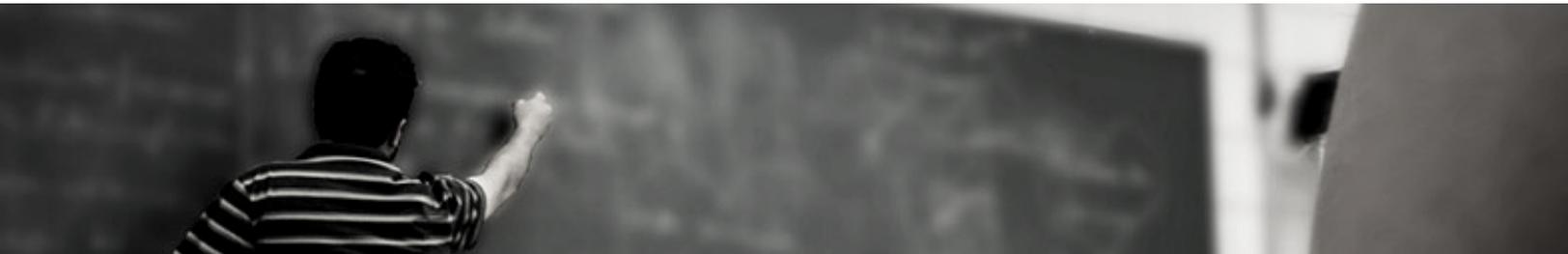


JUNIORBOTS COACH RESPONSIBILITIES

The JuniorBots Coach could be a teacher or parent who will be responsible for the administrative and behavioral aspects of the team.

JUNIORBOTS COACH RESPONSIBILITIES

- Recruit at least 6-8 middle school students to participate on one JuniorBots team
- Coordinating team meeting dates, times, and locations. In October, teams should be meeting at least two hours per week and perhaps even more until April (please keep in mind a plan for holiday breaks)
- Coordinating cage testing times. Fredon Corporation (8990 Tyler Blvd Mentor, OH) and A-tech (1565 State Route 167, Jefferson, OH 44047) will open up cages for testing in November. If your team is too far away, your team may want to purchase a testing cage
- Ensuring that the teams forms (team information sheet, SWOT analysis, volunteer waivers, other team documentation) are complete by the specified due dates in the team google folder that the AWT Foundation provides
- The Coach is also responsible for communicating the financial investment that companies are making in the robotics team
- Coordinate travel arrangements to team meetings and the robotics competition
- Attend all team meetings and **ensure that students are behaving properly and in accordance with all safety guidelines**
- **Creating a policy to address student attendance, behavioral, or work concerns that the industry sponsor agrees with**
- Stress that attendance, completion of projects/work assigned by the companies to the students. **Companies can “fire” a team at any time during the build process, because this program is supposed to simulate the real-world workforce**



The Industry sponsor is responsible for providing financial and technical support for the JuniorBots team.

COMPANY SPONSOR RESPONSIBILITIES

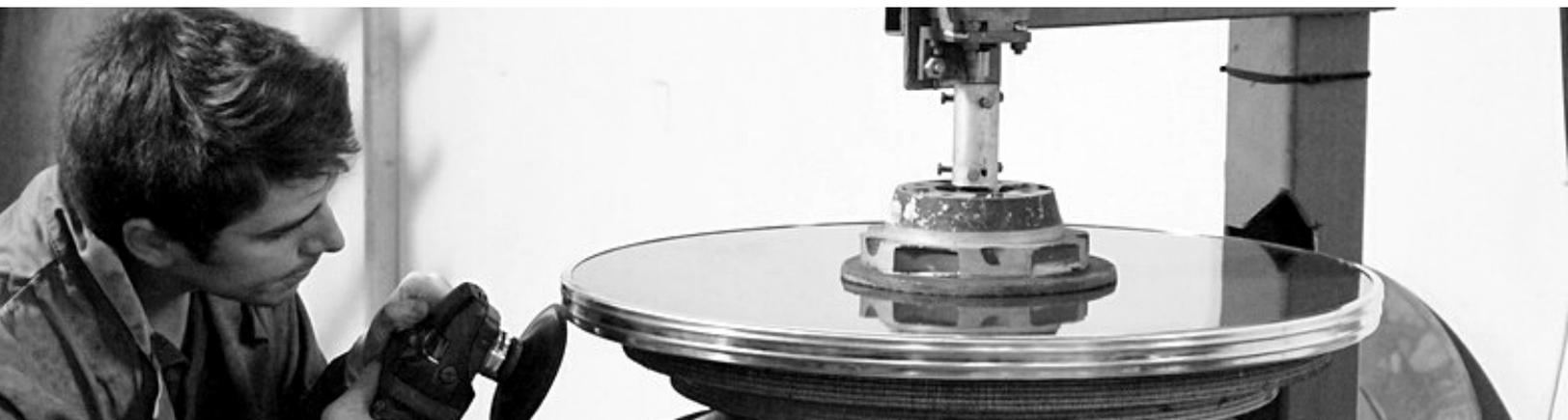
- **Sharing the safety practices of your company with the JuniorBots students and parents, especially if students will be using your facility for their meetings**
- Provide funds to the AWT Foundation (as a 501-c3 non-profit, we can normally get the kits cheaper) to purchase your team's fingertech viper kit with controller (\$250-\$265) *or the company can provide the expertise to help your team design and create their own 3lb combat robot*. Please note, the kit does not come with the weapon (it can be added on) or the AA batteries
- Provide funds to AWT Foundation (as a 501-c3 non-profit, we can normally get the weapon cheaper) to purchase your team's robotic combat weapon (\$45-\$60) such as the ones found on page 8 *or help your team design and create their own combat robotic weapon*
- Provide your team with tools and personal protective equipment (safety glasses & gloves) to use throughout the build process
- If you are able, provide a space in your facility for your team to meet
- Designate whether or not your team will use Fredon Corporation (8990 Tyler Blvd Mentor, OH) and A-tech (1565 State Route 167, Jefferson, OH 44047) testing cages. Both will open up cages for testing in November. If these two locations are far away, we can pair you with a team that has a cage close to you or your team may purchase one. Contact Juliana Petti Juliana@Thinkmfg.com to set up testing time
- Provide t-shirts with your company logo for your JuniorBots team for competition day
- Stress attendance, completion of projects/work assigned to the students. **Remember, an industry sponsor can “fire” a team at any time during the build process, because this program is supposed to simulate the real-world workforce**
- **Designate one or two individuals to be the Industry Advisor(s) for the JuniorBots team**



The Industry Advisor is responsible for technical support, project timelines, and safety practices of the JuniorBots team. **The ideal Industry Advisor has electrical knowledge and has experience working with students.**

INDUSTRY ADVISOR RESPONSIBILITIES

- **Sharing the safety practices of your company with the JuniorBots students and parents, especially if students will be using your facility for their meetings**
- **Complete any adult waivers, school background checks, etc to work with students**
- Train students on personal protective equipment (PPE) and the proper use of tools
- Help students build the 3lb combat robot or design their own 3lb combat robot with safety practices in mind
- Help students choose or design a combat robot weapon
- Provide technical support and technical learning experiences for students
- Simulate real-world workplace situations and build timelines for students (with holiday breaks in mind). Provide any "homework" assignments for students to complete
- Attend all team meetings
- Stress attendance, completion of projects/work assigned to the students. **Remember, an industry sponsor can "fire" a team at any time during the build process, because this program is supposed to simulate the real-world workforce**





THE FINGERTech VIPER KIT

If you are a first year team, the AWT Foundation has found that using the FingerTech Viper kit is a great starter kit. The kit cost is about \$250-\$265 with all parts and the radio transmitter. There is an additional fee for the weapon, but most teams enjoy making their own weapon. The kit does not come with AA batteries.

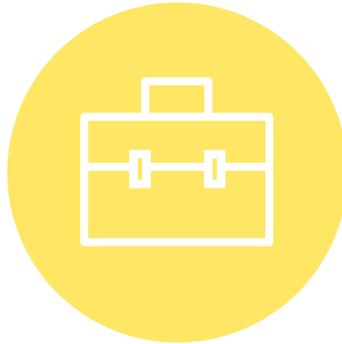
Here is the link to the FingerTech kit:
<https://www.fingertechrobotics.com/products.php?cat=Viper+Kits+and+Add-Ons>



INSTRUCTIONS

The kit comes with instructions. However, the two items that will need to be purchased are AA batteries and the weapon.

If your team does not feel comfortable making a weapon, you can purchase one from the FingerTech Add-ons such as the spinner or lifter found here:
<https://www.fingertechrobotics.com/products.php?cat=Viper+Kits+and+Add-Ons>



OWNERSHIP

It is important to note that the viper kit is the property of the business, because they have purchased the kit.

If the company does not wish to sponsor a team next year, many companies keep the kit for sponsoring in the future or donate it to the AWT Foundation to help another team



COMPETITION

It is important to note that many teams start with the viper kit, but they are normally not as competitive as the teams who modify or build their own JuniorBot. You can start with the kit and modify as much as you'd like



SAFETY



1. Wear safety glasses and gloves when working on the JuniorBot

2. Always charge batteries outside of the robot

3. Always charge batteries in a Battery Safe bag

4. Only use tools as they are intended

5. When in doubt, ask someone

6. Don't work alone

7. Do not allow students to carry robot by the weapon

Safety is our first priority. All JuniorBots teams must abide by the following safety rules:

8. If a battery starts to puff up or get hot immediately remove connections and move away

9. Do not use LiPo batteries

10. Ensure all wiring insulated properly and not exposed outside of robot

11. Ensure robot has a kill switch

12. Ensure robot is 3lbs or less

13. When transporting the robot, use a plastic bin

14. Ensure weapon system is reliably controlled

JUNIORBOT AWARDS

MOST INNOVATIVE

As the Safety Check volunteer completes safety check for your JuniorBot, he/she will be rating your JuniorBot in terms of unique design, creative builds, and how much your JuniorBot stands out from the rest

BEST ENGINEERED

As the Safety Check volunteer completes safety check for your JuniorBot, he/she will be rating your JuniorBot in terms of engineering integrity, efficiency, and practicality

BEST DOCUMENTATION

While the JuniorBots teams are not responsible for the in-depth type of documentation that Robobots teams are responsible for, we count your SWOT analysis, team meetings, and reflections as your documentation. This year, the AWT JuniorBots Committee will be selecting a best documentation winner based on timeliness, clarity, and detail

1ST, 2ND & 3RD PLACE COMBAT WINNERS

Throughout the day, JuniorBot teams will compete against one another in 90 second battles. JuniorBot Combat Judges will determine the winner of the battle based on competitor damage, robot aggression, and total competitor hits

Your team Google Folder

AWT will provide your team with your very own google folder. All requirements, due dates, and templates are inside of this folder for your reference. E-mail Juliana Petti (Juliana@Thinkmfg.com) to set-up your folder

JuniorBot

RESOURCES

3-D Printing

AWT Company member, Reynolds machinery has offered to 3-D print parts for RoboBots & JuniorBots. You can contact John Corrigan (JCorrigan@reynoldsmachinery.com) of Reynolds Machinery to ask if your part would be a good candidate for 3-D printing.

Experienced Teams & Coaches

If you feel lost, don't worry, we have many experienced JuniorBots team and coaches to help. Reach out to Juliana Petti, AWT Executive Director (Juliana@Thinkmfg.com) and she'll connect you via email with an experience coach to share best practices, ideas, etc.

Online Suppliers for Parts

Gears-Ed/Depco
 HobbyPartZ.com
 BaneBots
 Servo City
 Robot Shop
 McMaster-Carr
 Hobbytown USA
 American Science & Surplus
 HGR
 Lynxmotion
 The Robot Marketplace
 eHobbies
 Hobby King
 RC4WD

Lake Erie College Graduate Credit

Did you know that you can receive up to 6 credits of graduate course credit for serving as a JuniorBots Coach? E-mail Mary Balmford for more information: mbalmford@lec.edu

JuniorBot Build Videos

About the Viper Kit:

<https://www.youtube.com/watch?v=pxV-JLKW9mc>

How to Build the Viper Kit (with lifter weapon):

<https://www.youtube.com/watch?v=Cxeb7jJO96E>

Viper Kit Spinner weapon:

<https://www.youtube.com/watch?v=Hczxe7AY4BQ>

Build your Own JuniorBot:

<https://www.youtube.com/watch?v=sUtezwaurLQ>

Cage Testing

Fredon Corporation (8990 Tyler Blvd Mentor, OH) will provide cage time for testing starting in November. A-tech (1565 State Route 167, Jefferson, OH 44047) will also provide cage time. If these locations are too far away, we can pair you with a team that has a cage or your company sponsor may purchase one. Contact Juliana Petti Juliana@Thinkmfg.com to set up testing time

JUNIORBOT COMBAT RULES

NO REPLACEMENT JUNIORBOTS

While teams are allowed to create replacement parts to use throughout competition day, teams are not allowed to prepare complete replacement JuniorBot to use in battle

NO UNSPORTSMAN-LIKE CONDUCT

All JuniorBots teams must conduct themselves in sportmans-like manner throughout the competition. Any team who is deemed unsportsman-like will be disqualified. Please note that team family members should be held accountable for sportsman-like behavior as well. ***Please no use of horns, noise-makers, etc. while teams are competing***

NO INTERFERENCE FROM COACHES OR ADVISORS

While JuniorBots advisors and coaches can support their team, they must not touch the controller during the battle or give advice during the battle. The JuniorBots driver and other student team members must be the ones competing, ***not advisors or coaches***

FAQ

How do I know when my child will be competing?

The competition schedule is determined by random seeding for teams the day of. The brackets will update in real-time via our website and Facebook page. The battles will be live streamed from our Facebook page and website.

How long are battles?

The battles are about 1 minute and 30 seconds. We will have video cameras broadcasting the battles on a big screen in the gym.

Who decides the winner of each battle?

Our battle winners are determined by our JuniorBots Combat Judges who are normally former AWT RoboBots participants.

If our JuniorBot is pinned or stuck during battle, what do we do?

Our combat referees will flip over or unpin each JuniorBot team once during each battle.

What is the best team size?

The ideal JuniorBots team is about 6-8 students.

How much time will we have to repair our JuniorBot between battles?

In the beginning of the competition, you may have an hour or two to fit your JuniorBot. However, towards the end of the competition, you may only have 20 minutes to fix your Juniorbot.

Will tools be provided for repair on competition day?

No, tools will not be provided for repair. Please make sure to bring a tool box to fix your JuniorBots. Remember, anything can happen in battle, so please be prepared to fix any of your parts. AWT will provide you with your own team table or work station.

Are there any other activities taking place throughout competition day?

Yes, we have many activities to do during down-time. Normally, we have Skipper from the Lake County Captains to take pictures with, fun activities for a small fee at the HIVE (Makerspace) at Lakeland, t-shirts to buy, raffles to take part in, and hands-on activities for families.



ENOUGH TALK, ARE YOU READY TO COMBAT THE SKILLS GAP WITH US?

AWT FOUNDATION JUNIORBOTS

READY TO START A TEAM?

CONTACT JULIANA PETTI
AWT EXECUTIVE DIRECTOR
JULIANA@THINKMFG.COM