ALLIANCE FOR WORKING TOGETHER FOUNDATION

Working Together to Promote Rewarding Careers in Manufacturing

AWT Junior Bots!

The nuts and bolts……

The AWT Foundation promotes rewarding careers in manufacturing.

How does AWT promote manufacturing?

Students are exposed to manufacturing through a variety of ways – tours, speakers, career fairs such as the ThinkMFG Expo, the Summer Manufacturing Institute and the popular combat robotics program, AWT RoboBots.

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A few highlights….

- RoboBots Program has grown from 10 teams in 2011 to 32 teams in 2015.
- Close to 800 participants
- High school students work with a manufacturing sponsor to design, build, test and battle a 15-lb. combat robot.
- Students gain valuable experience in the industry and see – first hand – the many career opportunities and benefits available to them.

Is it working?

Many of our AWT alums go on to pursue engineering and other manufacturing related fields of study after graduation. Other students graduate and enter the workforce right away. Many have been offered full-time positions with their company sponsor and are eligible for tuition reimbursement as well as the AWT scholarships at Lakeland Community College.

What's the benefit to younger students?

Many of our school currently offer STEM classes or curriculum at the middle school level. The popularity of these programs is growing at a fast pace.

The hands-on style of STEM education directly correlates to the experience students are offered in the AWT RoboBots program. Over the past few years, parents have asked if we have a program for younger students…and now we do!

Keeping the ‘wow’….

Our high school program is an intensive one. Students start in the fall and spend several hours a week at their manufacturing sponsor’s facility working on their bot. They are given safety training, orientations, provided personal protective equipment and may even have the chance to run a machine under the direct supervision of experienced machinists.

We wanted to come up with a program that would be appropriate for middle school-aged students while still maintaining the ‘wow’ of the high school RoboBots competition.

What happens on a Junior Bots team?

- Team designs and builds/assembles a junior version of a combat robot
- Team keeps track of budget
- Team creates and tracks project plan (with help of teacher)
- Team troubleshoots issues and makes improvements to the robot
- Team competes with other Junior Bot teams from Lake and Geauga counties on April 29, 2017 at Lakeland Community College

AWT Junior Bots 2nd Year

With the amazing support and efforts of State Representative, Ron Young, and State Senator John Eklund, AWT Junior Bots (pilot program) received state funding last school year.

Junior Bot kits, created in partnership with Depco, LLC, are designed to be reusable each year with minor updates – to repair any damage – and the selection of a new weapon.

Changes for 2017

- Introducing teacher liaison Tim – help with curriculum
- If you have a bot from last year, repair as needed. If you do not have a bot from last year, see AWT/Tim to get one.
    - Modifications will be allowed to your bots this year within NRL regulations.
    - Repair kits & the Botcoin Store: You'll be given a virtual budget in order to buy parts & tools for your bot from our shop. If you'd like to spend real money or trade for your modifications, you can do that too.

Forming a team…

1. Find a coach – a teacher, staff member or parent volunteer (school decision)

2. Choose team members (max of 7 students is recommended but up to the school)

Important criteria for a successful team member:

- Responsive to communications (email/text)
- Responsible for doing actions
- Interest in learning
- Good with working on a team

3. Find several volunteers with technical skills who can assist if needed

- Mechanical/Electrical applications ability
- Knowledge of motors and batteries and how they work together
- Would not need to come to every meeting

Forming a team…

4. Find a meeting place and determine meeting schedule
   *Will need access to a large space with no carpet (so the bot can roll around)

5. Complete and return the School Commitment Sheet to the AWT Foundation

6. AWT will assign each school a manufacturing partner from a member company

7. Connect with your manufacturing partner to discuss expectations

8. Review ordering instructions and guidelines for reimbursement **

**This program is considered a pilot project which has been funded through a grant from the state of Ohio for its inaugural year only.

Adult leader responsibilities…

Coaches will:

- Create a team (or teams)
- Make sure kids are safe when working hands-on with the bot
- Help with project planning
- Complete and submit any AWT forms, order kits and parts for the bot
- Establish clear expectations, maintain behavior & commitment of team members
- Ensure the robot is ready to compete on April 29, 2017
- *see school commitment sheet for additional information*

Manufacturing partners (assigned to each school by the AWT) will:

- Assist as needed throughout the program
- Lead brainstorming sessions and create a process map with the kids
- Ensure robot and documentation are complete and functional
- Provide technical guidance

Host a kick-off meeting….

Schedule a parent/student kick-off meeting as soon as possible.

Review the time commitment

Suggest 1 hour per week to start - perhaps more time in March and April

Team members required to bring their schedules to determine any scheduling conflicts

Establish team rules (suggestions below):

If team member misses more than 5 meetings, out of the club
Must respond to email or texts within 24 hours
If assigned a task, do it by the due date. If this isn't possible, communicate that to the team IMMEDIATELY
If the teammate needs help doing a task, ASK FOR HELP
Respect all team mates. Many skills are needed and ALL are important
If you can't make a meeting, let the Team Leader know right away

First meeting recommendations….

- Determine ongoing meeting time based on team members' and adults' availability
- Brainstorm team name
- Get to know each other exercise
- Review rules
- Go over and assign roles
- Develop contact list (email and phone#, also how is best to communicate)
- Homework for second meeting:

  Research bots online (youtube- look up "AWT robobot" and "BattleBots") and bring ideas to next meeting

  Have team members rank roles for which ones they would prefer to do (see next page for suggested roles and skill sets)

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Suggestions for assigning roles….

Job	Responsibilities	Skills required
Marketing Manager	Leads design of t-shirts; orders t-shirts; Designs posters; orders posters and posts them at school. Any other marketing to Kenston that is desired. Takes photographs and layout section tabs and posters. Designs artistic component of robot	Good art skills; good at working with different people; follow-up skills
Team Leader	Makes sure all team members know about all meetings; keeps track of who will be attending meetings; Keeps group on track; Lead for interviews/presentation	Lots of Energy, good communication with group, good presentation skills
Documentation Manager	Assembles all documentation kept throughout the project, Puts together documentation folder	Organized, good at reports/presentation materials, computer skills
Technical Manager	Determines repair strategy, leads repairs at competition, assembles repair kit	Good technical skills, good leadership under pressure
Project Manager	Keeps track of actions that need to happen throughout project. Makes sure all tasks are being completed in a timely manner with whole team	Very good organizational skills; good at follow-up ; good at computer skills
Driver(s)	Drives the bot at competitions	Works very well under pressure. Has good eye/hand coordination (being a video gamer helps). Can make very quick decisions and react to what's going on quickly

Note: Roles are assigned to emphasize that the manager has the ultimate responsibility for actions in that area. It in NO WAY means that there isn't cross-over. EVERYONE should work on the robot!

Budget Example

Budget example:
(New Schools vs Veteran Schools)

Item	Item Price	Quantity	Total Price	Funds Total
Total Money Available			$0.00	$1,000.00
Item Bought 1			$0.00	$1,000.00
Item Bought 2			$0.00	$1,000.00
Item Bought 3			$0.00	$1,000.00

How We Will Contact Each Other

- AWT will email you to stay in touch. Therefore, we need emails. Sign up (to be sure I have you) and if you're the only point-of-contact at your school, be sure to share information with anyone else that might be interested!
- AWT will CC manufacturing liaisons on communications so that they're in the loop.
- We will use Google Drive (like last year) to share forms with each other.
- Documentation forms will include:

Team Commitment Sheet
Expectation Questions (Before, During, after)
Meeting Minutes
SWOT Analysis of your Team
Budget

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2017 Junior Bots Competition!

Saturday, April 29th 2017 at Lakeland Community College

2017 Junior Bots Competition!

Competition rules (subject to change):

<u>BATTLES!</u>

Robots compete in head-to-head match in the middle school competition

- Single elimination format
- AWT will create brackets using an app (completely random)
- Matches last 3 minutes or one robot is knocked out or taps out
- Judging
  - Aggression- how many hits the robot inflicts
  - Control- how well the robot is controlled by the driver

2017 Junior Bots Competition!

Competition rules (subject to change):

PORTFOLIO

Documentation portfolio of project to include:

- Expectation form:
  Initial, Mid Program, Conclusion – For State Reporting
- Journal of project
  Can use meeting minute template
- Budget
- SWOT Analysis (Strengths, Weaknesses, Opportunities, Threats)

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The AWT Foundation and our manufacturing members are here to help!

Please contact us anytime via email, text or call:

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