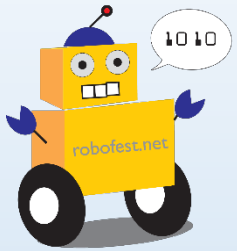

24th LAWRENCE TECHNOLOGICAL UNIVERSITY ROBOFEST® 2023

Kickoff II Presentation

Little Robots, Big Missions

November 3, 2022

This file can be found under the **Get Involved→2023 Main** page on the website

www.robofest.net robofest@ltu.edu 248-204-3568

Room J233 Taubman Complex, LTU
21000 West 10 Mile Road, Southfield, MI 48075, USA

Kickoff Meeting Agenda

- *Introductions*
- *Workshop Schedule and Grant Opportunities*
- *General Rules Highlights*
- *Open Competition Categories*
- *Exhibition Rules*
- *General Rules Q & A*
- *Game Rules*
- *Q & A and Wrap Up*

Robofest Staff

Staff:

- Dr. Chris Cartwright, Prof. of Mathematics, Director
- Elmer Santos, Assistant Director
- Shannan Palonis, Coordinator
- Pam Sparks, Coordinator
- Dr. CJ Chung, Prof. of Computer Science, Founder Advisory Board Chair
- Marilyn Weisman, MCS Department

Student Assistants:

- Giovanni DeRose
- Robert Newberry
- Scottie Rapp
- Anthony Shevenock
- Nicholas Sparks

Thanks to our Sponsors

2023 Workshop Schedule

Workshops are available at no cost to registered Game Teams (pre-registration is open)

Held in the Robofest Lab on LTU Campus. Recordings can be requested if teams cannot travel to LTU.

- VEX IQ with VEX Code
  - Saturday, 1/14/23 - 9:00 am ~ 12:00 noon
  - Saturday, 2/25/23 - 1:00 pm ~ 4:00 pm
- LEGO EV3 with Scratch
  - Saturday, 1/14/23 - 1:00 pm ~ 4:00 pm
  - Saturday, 1/28/23 - 9:00 am ~ 12:00 noon
- LEGO Spike Prime with Python
  - Saturday, 1/28/23 - 9:00 am ~ 12:00 noon
- LEGO Spike Prime with Scratch
  - Saturday, 2/25/23 - 1:00 pm ~ 4:00 pm

2023 Grant Opportunity

- **$500 grant for all-female Robofest Game or Exhibition teams in Michigan**
- **Funds can be used for equipment, registration fees, travel expenses…**
- **10 grants available**
- **Application available soon**
  https://mcwt.org/programs/list/K-12-Initiatives/ROBOTICS-GRANTS

General Rules Highlights

Open Competition Category Highlights

BOTTLESumo

- Be the first robot to intentionally push a bottle off the table OR be the last robot remaining on the table
- Three Age Divisions:
  - Junior Division (Grades 5~8): Only LEGO NXT, LEGO EV3, LEGO Spike Prime and VEX IQ
  - Senior Classic Division (Grades 9~12): Only LEGO NXT, LEGO EV3, LEGO Spike Prime and VEX IQ
  - Sr. Unlimited Division (Grades 9~12): Any robot platform
- Max team size: 3
- Rules: robofest.net → **Get Involved** → **BottleSumo**

UMC

- Unknown Mission Challenge
- Missions are completely unknown until day of challenge
- Two Age Divisions:
  - Junior Division (Grades 5-8)
  - Senior Division (Grades 9-12)
- LEGO NXT, LEGO EV3, LEGO Spike Prime or VEX IQ kits
- All robot components must be un-assembled at the beginning of the competition
- Max team size: 4
- Rules: robofest.net → **Get Involved** → UMC

RoboArts

- Exhibition style projects specifically focused on the visual and performing arts
- Two Age Divisions:
  - Junior Division (Grades 5-8)
  - Senior Division (Grades 9-12)
- Max team size: 5
- Rules: robofest.net → **Get Involved** → RoboArts

RoboMed

- Exhibition style projects of intelligent and interactive (bio) medical robotics/devices or related to (bio)medical and healthcare fields
- The project must use sensors and/or actuators
- Promotes on entrepreneurial mindset. Sentences about “Opportunity Recognition” and “Value Creation” are encouraged in the project description
- Three age divisions
  - **NEW!** Junior Division (Grades 5-8)
  - Senior Division (Grades 9-12)
  - College Division (Undergraduate including Community College students)
- Team Size: Maximum five (5)
- Rules and Judging rubrics: robofest.net → **Get Involved** → **RoboMed**

RoboParade

- Robots are constructed and programmed by student participants to follow the parade route, detect other vehicles, stop and start without human help
- 2023 World Championship Event Theme: **“Animation”**
- Robots pull or carry decorative parade floats. Moving parts are allowed
- One Age Division
  - Junior - 4th ~ 8th Grade (no waiver needed) Perfect for beginners
- Max team size: 5
- Rules: robofest.net → **Get Involved** → **RoboParade**

Exhibition Rules

Exhibition

- Complete freedom to show off any type of creative intelligent robotics project -Robotics Science Fair
- Two Age Divisions:
  - Junior Division (Grades 5-8)
  - Senior Division (Grades 9-12)
- No Recommended Theme
- Must employ sensors
- Human to Robot, Robot to Robot interaction strongly encouraged
- Wireless program controlled remotes are allowed only if the program of the remote controller is written by students
- Space for project is limited to **64** square feet including a 6ft or 8ft table

Exhibition

- Four minutes are given for an official presentation including demonstration. Team is responsible for keeping the time
- Sharing online videos (such as YouTube) is highly recommended prior to Qualifiers so judges can prepare questions –Upload to team registration page

Judging

Rules and Rubric: robofest.net → **Get Involved** → **Exhibition**

- The application of math and science theories which are appropriate to the team members' age level is a strong plus for judging. Not appropriate to the age level is OK, but it may not give any advantages for the judging
- One member team is allowed, but will get lowest score for teamwork criteria

Exhibition Judging Rubric (1 of 2)

Similar Rubric is used for RoboArts and RoboMed

5: Strongly Agree	excellent, outstanding, advanced, exemplary, or amazing
4: Agree	good, accomplished, or proficient
3: Neutral	average, intermediate level, or acceptable
2: Somewhat Disagree	attempted but needs work
1: Disagree	little attempted or needs lots of help

Judging Category	Sub Categories	Weight	1 ~ 5 Score
1. STEM learning	This project truly demonstrates applications of science, engineering, and math.	8%	
	Students have an age appropriate understanding of the science, engineering and math concepts they applied.	8%	
2. Project idea and originality	The project idea is very original and showed impressive creative thinking and problem solving skills.	12%	
3. Project demo performance (robot)	The official public robot demo is free from problems and very impressive.	12%	
4. Project presentation	Project presentation is clear, well organized, and delivered effectively within the allowed time.	8%	
	Information on the team poster, brochure and signage is clear, well designed, and able to be understood even by robotic novices. Project is within allowed size parameters.	4%	

Exhibition Judging Rubric (2 of 2)

5. Teamwork	Specific member roles are clearly introduced. Work division is well balanced. Team members are respectful toward each other.	5%	
	Teamwork and team spirit are evident. *Note: If the team only has one member, the score should be 1.*	3%	
6. Robot design	The robot mechanical design is creative, effective, user-friendly, and sturdy.	8%	
7. Project complexity	The project is complex with multiple features/functions, sensors, and components.	7%	
8. Practicality	The project shows potential as a useful and practical application of robotics technology.	7%	
9. Programming	Students are able to explain their programming code. Programs are well structured and commented.	8%	
10. Team independence	Based on my observations and interaction with the team, I believe the project was mostly designed, developed, and programmed by students, not by adult coaches, parents, or mentors. The students were able to clearly and confidently explain each part of their project.	10%	

ROBOFEST

Lawrence Technological University

General Rules, Open Categories and Exhibition

Q&A

2023 Game Rules

Presented by Elmer Santos

Game Rules
Q&A

Thank You!

Send questions to Robofest@ltu.edu

Next Kickoff Meeting is Thursday, November 3, 7:00 pm