Tohoku University Formula Team (TUFT)
(EV Formula Car Racing)
2024-2025 Activity Report

2024-25 Project Leader
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- Background, objectives
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  - Team Details
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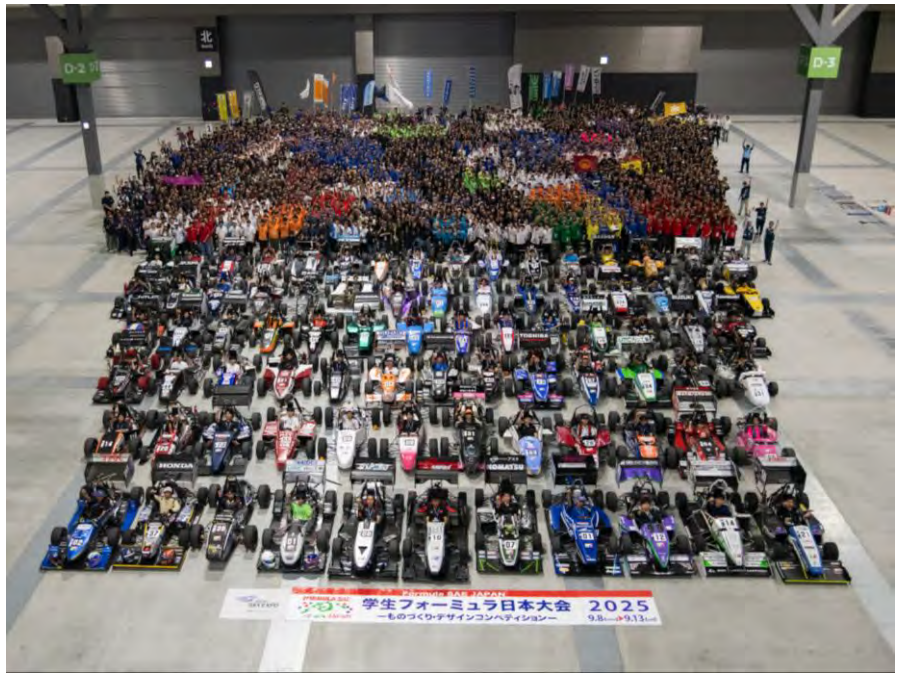
Competition Background

Purpose of the Competition

To develop human resources that, through the support of government, industry, and academia, will contribute to the development and promotion of both automobile and technology industry

Outline of the Competition

A competition in which students compete with vehicles that they have conceived, designed, and built themselves.



Tohoku University Formula Team (TUFT)

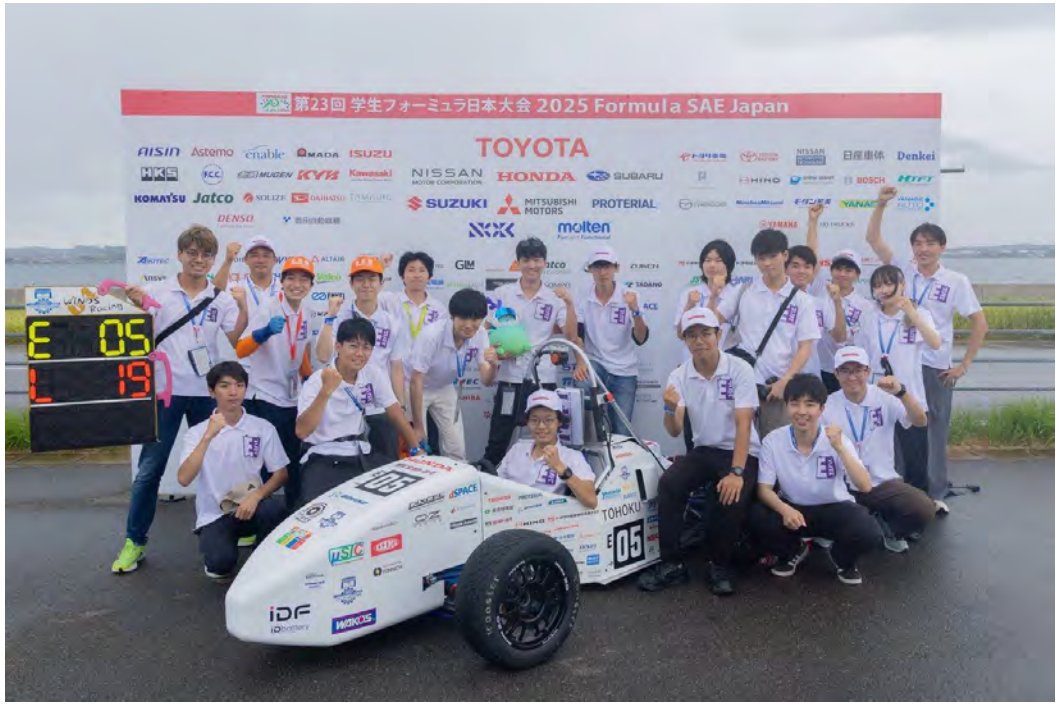
Team Activity:

Development of EV formula racing car

Team Concept:

Grow as Engineers

Founded: 2011
First competition: 2013
Members: 21



Objectives

2024 Competition Goal:
Complete all events

2025 Competition Goal:
525 points

	Event	Target Score
Static Events	Cost	40
	Design	75
	Presentation	55
Dynamic Events	Acceleration	50
	Skidpad	45
	Autocross	80
	Endurance	150
	Efficiency	30

Results & Awards

Overall Results

- 312.83 points
- 10th in EV Class

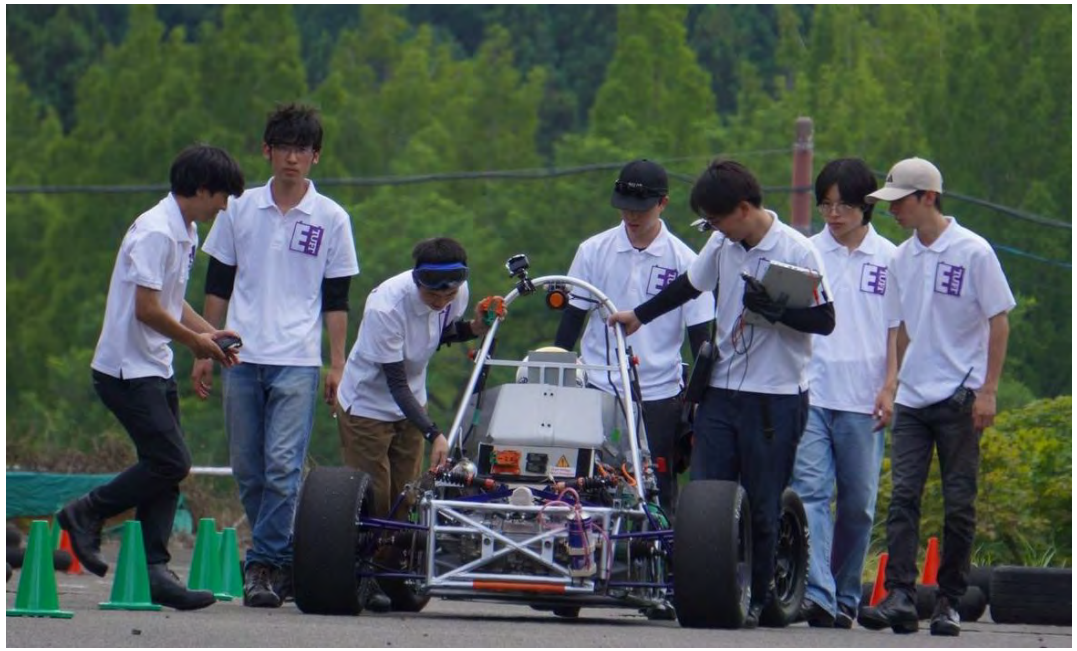
Special Awards

- Ergonomics Award: 1st Place
- Best Mechanical Inspection: 3rd Place

Event	Target Score	Actual Score
Cost	40	53.62
Design	75	77
Presentation	55	53.62
Acceleration	50	33.23
Skidpad	45	3.5
Autocross	80	49.13
Endurance	150	19
Efficiency	30	29.55
Total Score	525	312.83

Challenges & Reflections

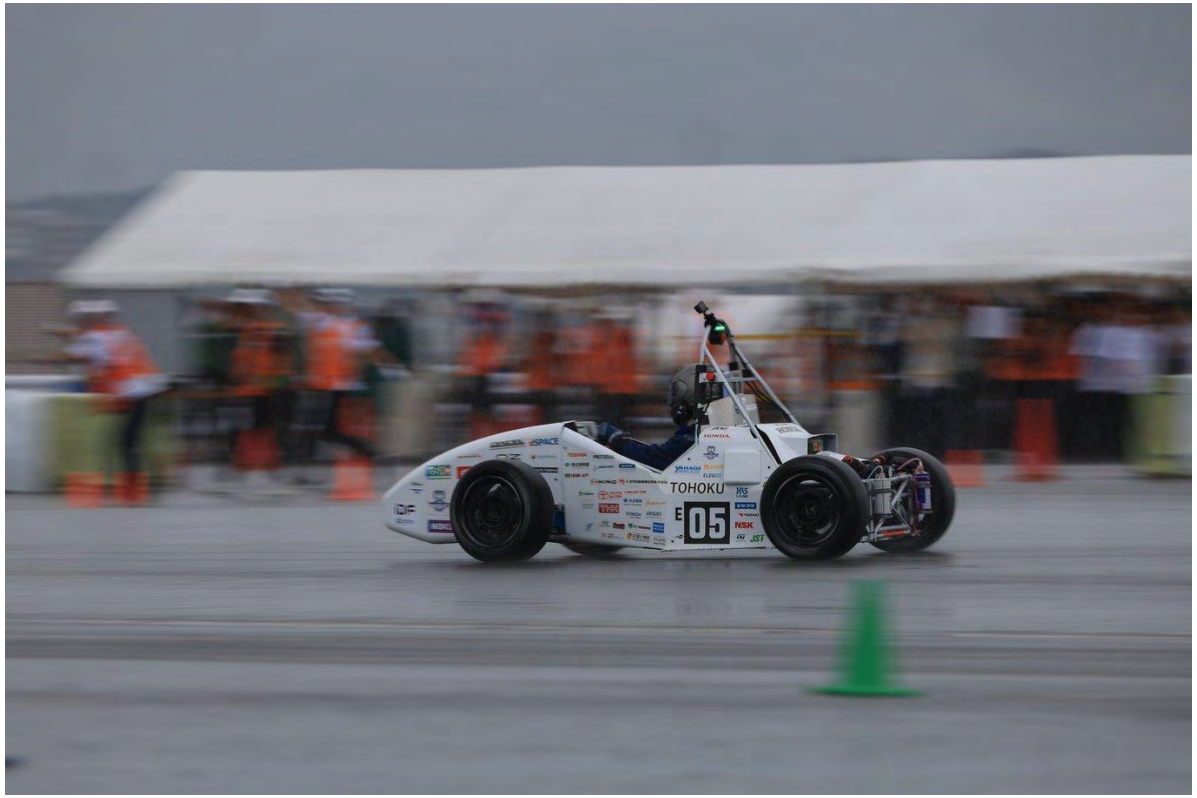
- Battery Management System (BMS) Error
  - ✓ Run 1 lap before stopping
  - ✓ Difficult to fine tune machine settings
  - ✓ Lack of skidpad testing



Challenges & Reflections

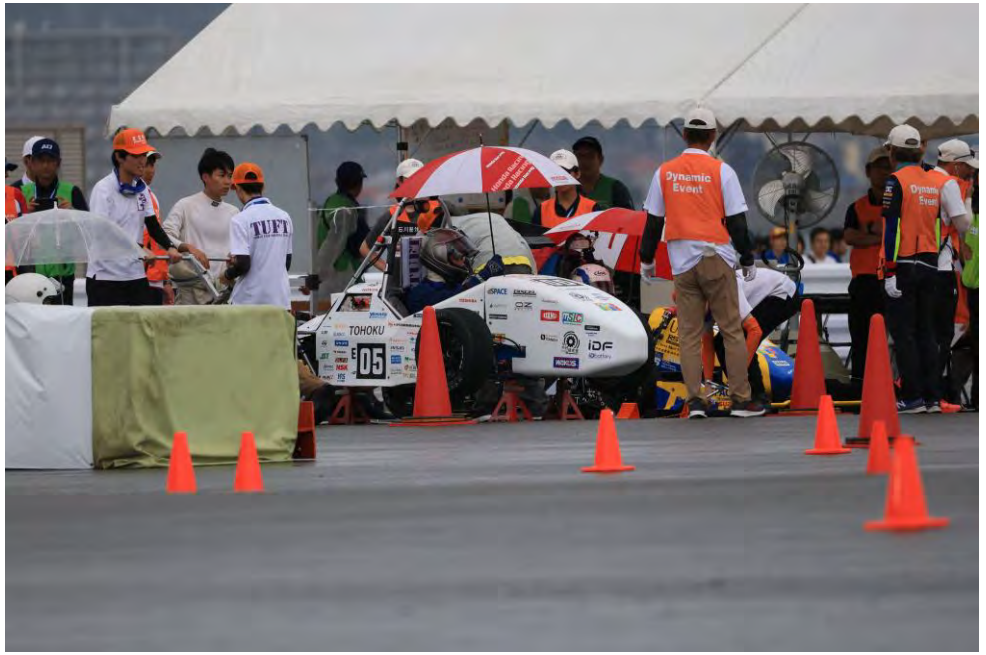
Rain during the endurance event

- ✓ Sudden downpour caused teams to return to the pits
- ✓ Unscheduled pitstop caused confusion in the number of laps completed



Challenges & Reflections

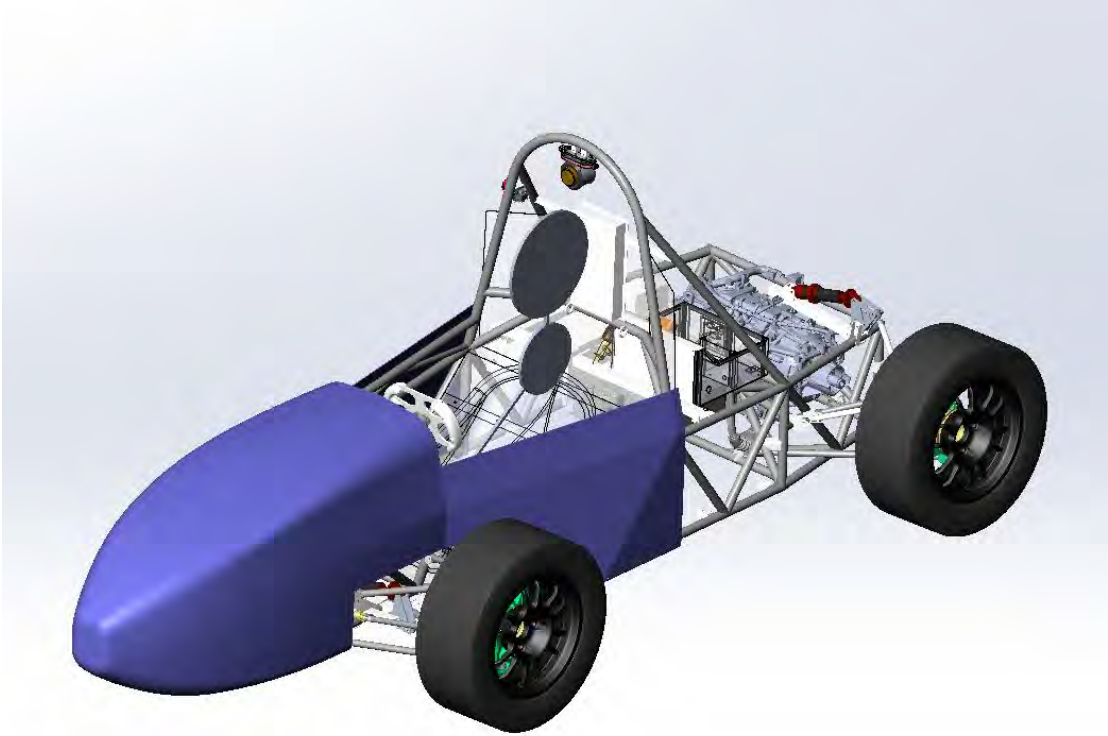
- BMS Error
  - ✓ Testing plans to maximize limited running
- Rain during endurance event
  - ✓ Better communication systems between the pit area and track side



Future Plans

TF-26 Machine

- Focus on turning and increasing yaw rate
  - ✓ Increase cornering speed
- Twin 27 kW motor unit
- Lightweight ~ 320 kg
- 600 points



Conclusion

- Participated in the 2025 Formula SAE Japan Competition
  - ✓ 10th place EV class
  - ✓ 1st place ergonomics award
  - ✓ 3rd place best mechanical inspection award
- Not able to achieve our goal of 525 points, but scored better than expected in the static events.
  - ✓ First time the static events were held in person since Covid.
- Car needs to be more lightweight and have a higher turning ability
  - ✓ Team communications can also be improved to make fewer mistakes

Acknowledgement

Our activity of making and developing a formula vehicle is not possible without the support of many organizations and individuals. We would like to express our sincere gratitude to the Boeing Higher Education Program for making our activities possible.