

# Tohoku University Formula Team

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## 2022-2023 Activity Report

2022-2023 Project Leader  
Takuma Yana  
Member  
Shuhei Niwano

- Overview
- Activities
  - Exchange Events
  - Trial Runs
  - Competition
- Conclusion
- Acknowledgement



- 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 technology and industry

- Outline of the Competition

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

Around 80 teams participate from Japan and abroad with the cooperation of nearly 250 companies, which includes major automobile manufacturers.



- Required Documents and Vehicle Inspections
  - In order to participate in the competition, competitors must prepare and submit necessary documents, including safety certificates by the respective deadlines.
- Static Judging
  - Design
  - Presentation
  - Cost review
- Dynamic Judging
  - Acceleration
  - Skidpad
  - Autocross
  - Endurance
  - Efficiency





学年	名前	担当領域	Remarks
B4	Daiki Iwamoto	Powertrain	Box production
B4	Tatsuhiro Okudaira	Chassis	Suspension
B3	Daisuke Akai	Powertrain	'23 new member
B3	Shunta Tohtake	Powertrain	Charger/low voltage
B3	Takuma Yana	Chassis	Frame, etc.
B2	Daichi Inoue	Chassis	Chassis
B2	Yudai Kobayashi	Powertrain	High voltage
B2	Shoya Sawano	Powertrain	Wiring
B2	Shuhei Niwano	Chassis	'23 New member
B1	Kai Aoyagi	Chassis	'23 New member
B1	Aohito Imura	Chassis	'23 New member
B1	Sayaka Takata	Chassis	'23 New member
B1	Takaaki Fukuda	Powertrain	'23 New member
B1	Yamato Momma	Chassis	'23 New member

Team Activity Motto (During Tf-23)  
“Grow as engineers through practice”



Team Photo

Project name: **「Restart」**

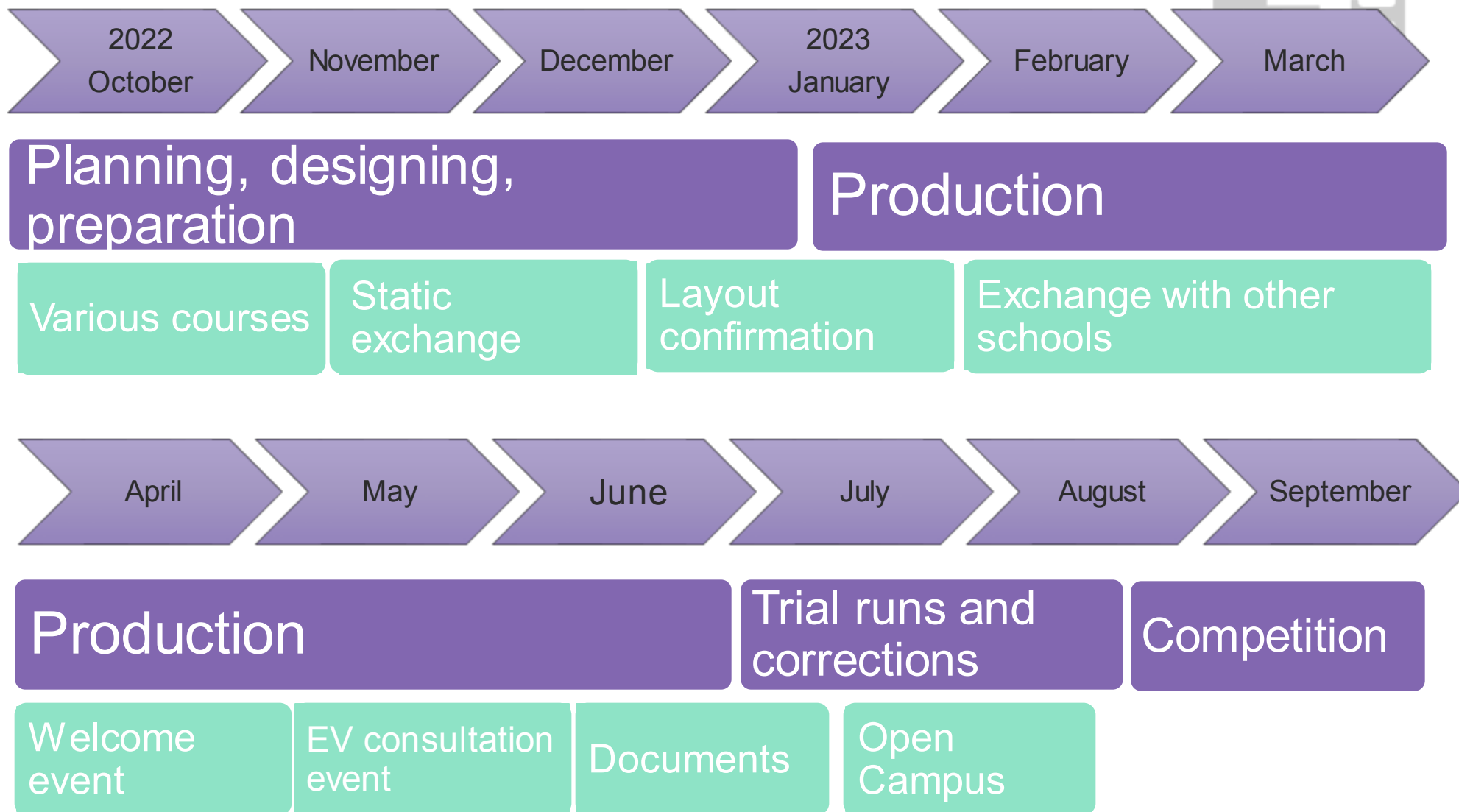
Goal for the competition:  
Complete all events to win  
the overall competition

Why the project name:  
With members with little or  
no experience building a  
vehicle, the machine was  
not ready to run in the 2022  
competition

2011 – Start of activity  
2013 – First year competing

2015~2019 – Participation in  
competition  
2020 – Cancellation of competition  
due to Coronavirus

2021 – Static Judging only  
2022 – Shakedown not  
achieved



Exchange events with other schools



Institute of Technologists

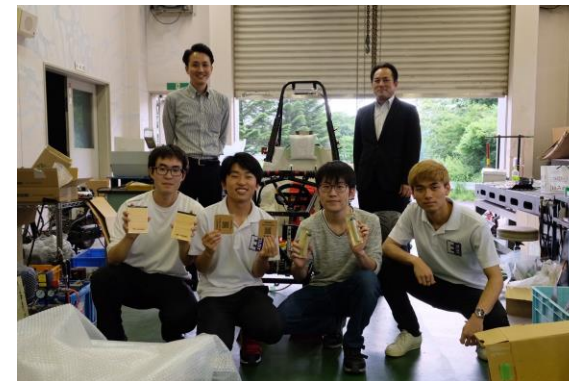


Tohoku Gakuin University

Interaction with sponsors and alumni



Honda Motor Co.



Yazaki Group



## First Trial Run

Location: Nishizawa Center

Date: 7/8,9

Goal: Take shakedown video



## TMEJ Trial Run

Location: Toyota Motor East Japan, Inc., Ohira Plant

Date: 8/12,13

Goals:

- Confirm the restoration of the machine
- Give driving experience to all drivers scheduled to drive during the competition



## Honda Motegi Trial Run

Date: 7/22,23

Goals:

- Successfully film shakedown video
- Confirmed stable driving
  - Damaged the machine during brake test

Day1

Day2

Day3

○  
Electric Vehicle  
Inspection1

○  
Electric Vehicle  
Inspection2

Mock technical  
inspection with  
Shizuoka and Tokyo

×  
Technical  
inspection

○  
Re-Technical  
inspection

○  
Driver  
Test

○  
Tilt

○  
Rain

×  
Brake

Day4

Day5

×  
Brake  
Vehicle Trouble

Battery  
Maintenance

Dynamic  
Deadline

Battery  
Maintenance

○  
Technical  
re-inspection

○  
Electric Vehicle  
Inspection3

○  
Brake

Follow-up Run  
1lap/10lap and not finish

2.pm

4.pm





	Points	Standings
Presentation	57.06/75	18/64
Design	51/150	40/68
Cost	40.43/100	17/65
Acceleration	0/100	-
Skid pad	0/75	-
Autocross	0/125	-
Endurance	0/275	-
Efficiency	0/100	-
Penalty	-0	
Total	137.49/900	41/69

## Technical Specs

### BODY COLOR

black, purple

### FRAME CONSTRUCTION

steel spaceframe

### MATERIAL

Fiber-glass

### OVRRLL L/W/H

2722 mm/1460 mm/1430 mm

### WHEEL BASE/TRACK (Fr/Rr)

1650 mm/1320 mm/1320 mm

### WEIGHT (Fr/Rr)

358 kg/143 kg/214 kg

### SUSPENSION

(Fr) Double unequal length A-arm Push rod

(Rr) Double unequal length A-arm Push rod

### TYRES (Fr/Rr)

7.0-13 Hoosier R25B

### WHEELS (Fr/Rr)

13 inch OZ racing Alminum 20.5

### MTOR TYPE

Permanent magnet synchronous

### MAX POWER

54 kW

### MAX TORQUE

146 Nm

### MAX SYSTEM VOLTAGE

262.4 V

### ERELECTRODE MATERIALS

Li-ion

### COMBINED ACCUMLATOR CAPACITY

7.3 kWh

### DRIVE TYPE

Planetary Gear

### DIFFERTIAL

N/A

### BRAKE SYSTEM

(Fr) 2 outboard

(Rr) 2 outboard Hitachi Astemo calipers

### UNIQUE FEATURES

Twin Motor Unit/Torque vectoring system







We were able to score relatively high in TUFT history in the presentation and cost events.

Although we were unable to partake in the dynamic events, we found problems that needed to be fixed for the next season.

Attending the competition gave the members valuable experience of meeting other students and seeing the different machines.

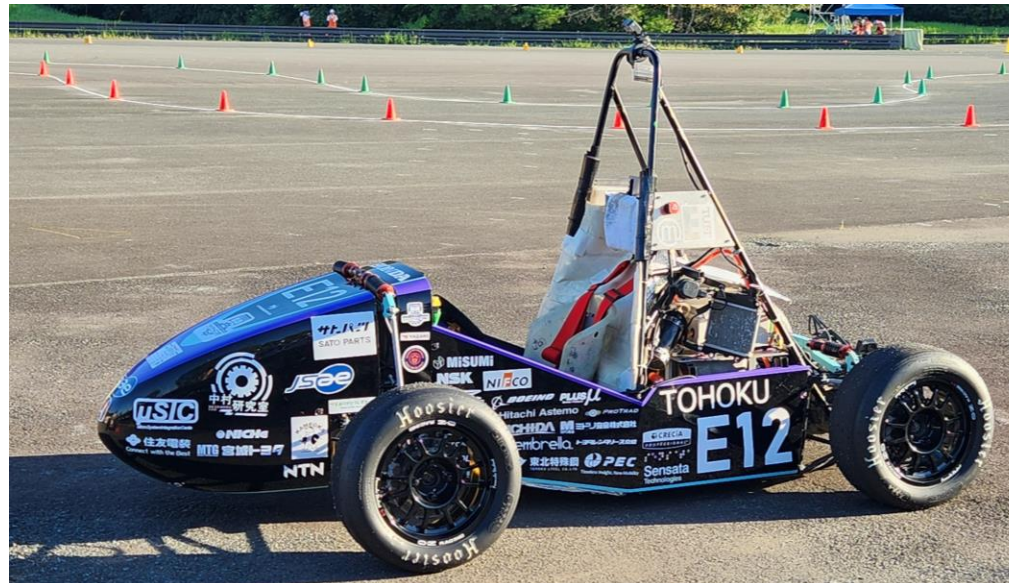


Photo from Ecopa Course

This season we have received support from over 40 corporate organizations and individuals. This activity would not be possible without their support. We would like to express our sincere gratitude to all for making our activities possible and fruitful.



We look forward to your continued support of the Tohoku University  
Formula Team

Thank you