

? FSAE???????? (FSAE-Test-Video-Data-Dashboard)

? FSAE???????? (FSAE-Test-Video-Data-Dashboard)

Python OpenCV Pandas

Excel RPM

?????

image

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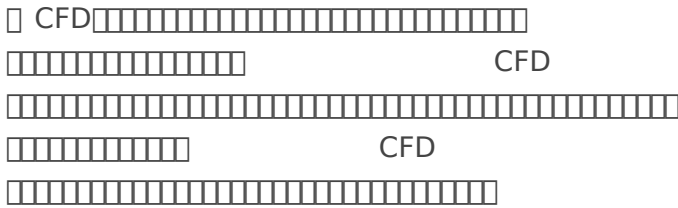
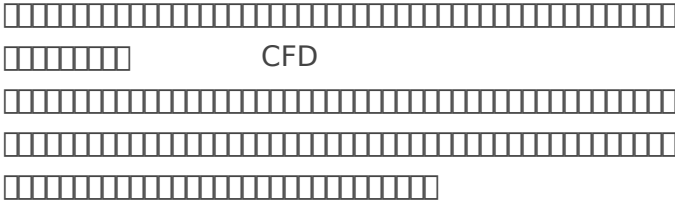
- Python Excel
- pandas
- numpy Excel
- openpyxl (Gauge)
- OpenCV

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- Python 3.5+
- opencv-python
- pandas
- numpy
- openpyxl (Pandas .xlsx)

??????

CFD



AI

1.1. ?????

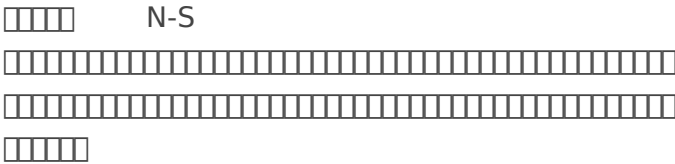
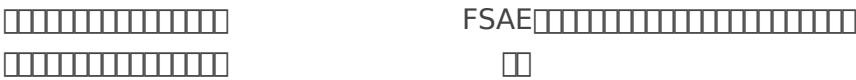


image-12



1. []



$v=v_\infty$

2. []

image-23



$v_r=0$

$$v_{\theta} = -\Gamma 2\pi r$$

$$\frac{dv_{\theta}}{dt} = -\Gamma 2\pi \frac{dr}{dt}$$

$$\frac{dv_{\theta}}{dt} = -\Gamma 2\pi \frac{dr}{dt} \quad \frac{dv_r}{dt} = -\Gamma \frac{dr}{dt}$$

$$\frac{dv_{\theta}}{dt} = -\Gamma 2\pi \frac{dr}{dt} \quad \frac{dv_r}{dt} = -\Gamma \frac{dr}{dt} \quad 1.1-3$$

$$\frac{dv_{\theta}}{dt} = -\Gamma 2\pi \frac{dr}{dt}$$

$$\frac{dv_r}{dt} = -\Gamma \frac{dr}{dt}$$

image-34

□ 1.1-3 □□

image-45

□ 1.1-4 □□□□ $\frac{dv_r}{dt} = -\Gamma \frac{dr}{dt}$

$$\frac{dv_r}{dt} = -\Gamma \frac{dr}{dt}$$

$$dv = \Gamma 4\pi dl \times r |r|^3$$

$$\frac{dv_{\theta}}{dt} = \Gamma \frac{dr}{dt} \quad \frac{dv_r}{dt} = -\Gamma \frac{dr}{dt}$$

image-56

□ 1.2-1a

image-59

□ 1.2-1b

1.2-1

$$\frac{dv_{\theta}}{dt} = -\Gamma 2\pi \frac{dr}{dt}$$

$$\frac{dv_r}{dt} = -\Gamma \frac{dr}{dt}$$

$$\frac{dv_{\theta}}{dt} = -\Gamma 2\pi \frac{dr}{dt} \quad P = \frac{dW}{dt}$$

$$\frac{dv_{\theta}}{dt} = -\Gamma 2\pi \frac{dr}{dt} = 10$$

$$\frac{dv_{\theta}}{dt} = -\frac{\kappa \cdot \sin\theta}{2\pi \cdot r^2} \quad \frac{dv_r}{dt} = -\frac{\kappa \cdot \cos\theta}{2\pi \cdot r^2} \quad \kappa = 20\pi$$

$$\frac{dv_{\theta}}{dt} = \frac{-\Gamma}{2\pi r} \quad \Gamma = 2\pi$$

$$P =$$

$$v_{\theta} = 0 - \frac{20\pi \cdot \sin 0}{2\pi r^2} - \frac{2\pi}{2\pi r^2} = -1$$

$$v_r = 10 - \frac{20\pi \cdot \cos 0}{2\pi r^2} - 0 = 0$$



1.2-2,1.2-3

image-60

1.2-2

image-61

1.2-3

????????????

2.1. ???????



1.  0 

Kutta-Joukowski

$$L' = -\rho v_{\infty} \times \Gamma$$






2. 
3. 


image-2 image-3

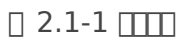
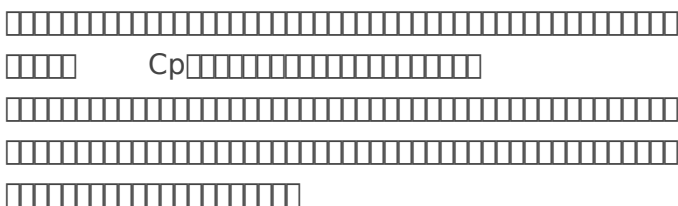


image-4



2.2. ???????

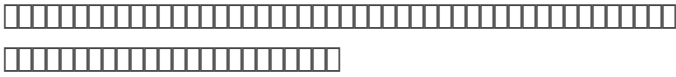
FSAE



Cp=0

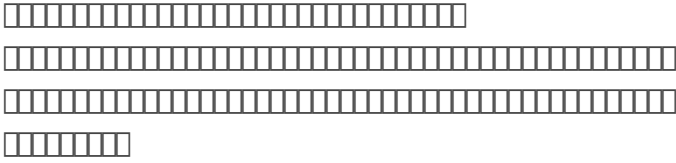
image-5

2.2-1 0012



5

1. Slat Effect



2.2-2a

image-6

2.2-2a

image-7

2.2-2b

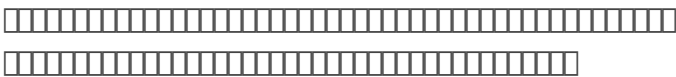
2. Circulation Effect



image-8

2.2-3

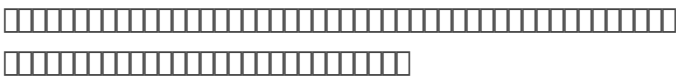
3. Dumping Effect



4. Off-the-Surface Pressure Recovery



5. Fresh-Boundary-Layer Effect



2.3. ????????



image-9

????????????

3.1. ????

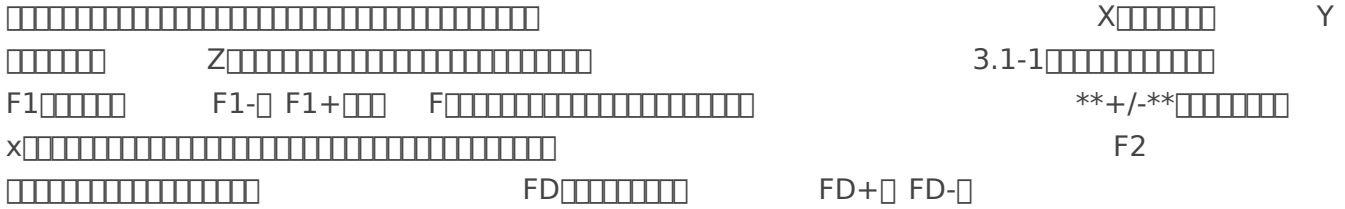


image-16

□ 3.1-1

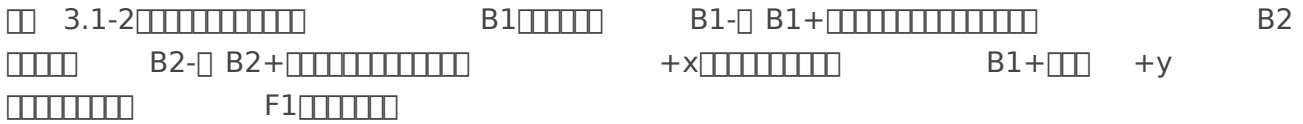


image-17

□ 3.1-2



image-18

□ 3.1-3 □ 3.1-4

image-19

□ 3.1-4

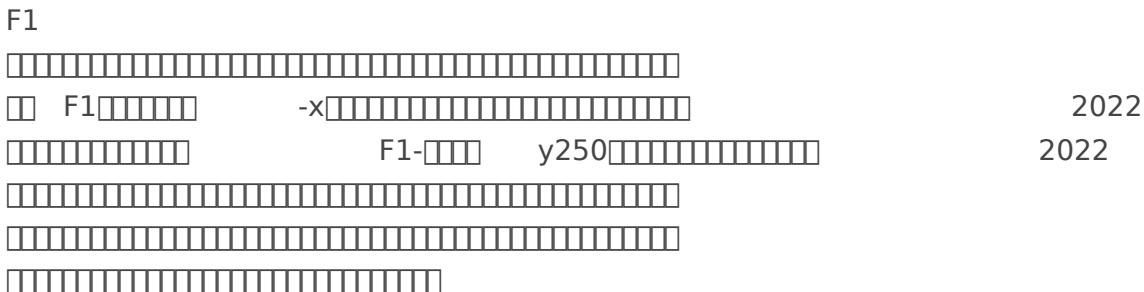


image-20

□ 3.1-5 F1 □ y250

image-21

□ 3.1-6 y250

2022 □ F1

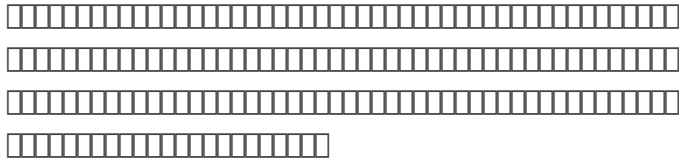


image-22

□ 3.1-7 2022 □ F1

image-24

□ 3.1-8

□ F1 □ FSAE □ +x □ B1

□ F1 □ B1 + □ +y □ F1 □ -y

□ +y □ +z □ -

□ +y □ Vortex Lift □

image-25

□ 3.1-9 FSAE

□ z=0

3.1-10 □

image-26

□ 3.1-10

3.2. ????

FSAE □ 10 □ FSAE

□ 1 □ 2 □ 1 □ y

□ 3.2-1 □

□ 10N □

image-27

□ 3.2-1

image-28

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1. []

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1. []
2. []
3. [] datalogger
4. []

??????(NCAP)

[]

1. [] Euro NCAP [] 100
[]
2. [] 0.2 g [] 0.3 g [] 56
km/h [] 10 [] 3 [] 72 km/h
[] ABS [] 72 km/h [] 5 [] []
3. [] 0.1 g [] 0.2 g [] 30
[] 3 [] 56 km/h [] 4 [] 10
[] 1 Hz []
4. [] 10 [] []
5. [] HCRs [] HCRm
[] 20 km/h [] HCRb
[] 2 [] 6 m/s² [] []
[] 5 [] 10 km/h [] [] 50%
[]
6. [] T0 [] TTC = 4
[] VUT [] ± 1 km/h [] GVT [] ± 1
km/h [] VUT [] ± 0.10 m [] GVT [] ± 0.05 m []
[]
[] 0 km/h [] > -5 m/s²
[] [] AEB [] [] HCRs
[] [] 30°/[] 0.5 []
[] 30%/ [] 0.5 [] [] 30%/ [] 0.5
[] [] [] 150°C
[] 50 km/h [] []
[] ≥ 100 Hz [] VUT [] GVT
[] []
[] Butterworth [] 10 Hz []

[]

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{E6BF89A1-33AA-4D50-BD01-AA4544/

0x501????????? ??switch case

????????? RxData->SendUart ????????

2026/03/13

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1. □□
2. □□□□

Dos & Don'ts

1. DR :
2. :
3. :
4. :
5. :
6. :
7. :

Vehicle Drawing

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- :
- :

Design Briefing

1.
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2.
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FSAE Cost Report Preparation Checklist

Team Information

- **Team Name:** _____
- **Competition:** _____
- **Cost Report Due Date:** _____
- **Cost Officer(s):** _____
- **Vehicle Target Cost:** \$_____

1. Pre-Report Setup & Planning

Task	Assigned Member	Due Date	Status	Notes
Download Cost Supplement from FSAEonline			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Download Cost Module Guide			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Access Online Cost Module on FSAEonline			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Review Cost Tables and Catalogs			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Set up team organization for cost report			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Create timeline and deadlines			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

2. Bill of Materials (BOM) Organization

Task	Assigned Member	Due Date	Status	Notes
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Create assembly tree structure			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Organize parts by 8 main systems			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Set up sub-assemblies per system			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Assign part numbers to all components			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Create master parts list			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

3. System 1: Frame & Body

Task	Assigned Member	Due Date	Status	Notes
Frame tubes and joints BOM			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Body panels and mounting hardware			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Roll hoop and impact attenuator			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Seat and restraint system			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost all materials from catalog			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost all manufacturing processes			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Create detailed drawings			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Calculate tooling costs (if applicable)			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

4. System 2: Suspension

Task	Assigned Member	Due Date	Status	Notes
Suspension arms and uprights BOM			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

Task	Assigned Member	Due Date	Status	Notes
Springs and dampers			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Bearings and bushings			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Anti-roll bars and linkages			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost all materials from catalog			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost all manufacturing processes			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Create detailed drawings			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Calculate assembly costs			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

5. System 3: Drivetrain

Task	Assigned Member	Due Date	Status	Notes
Engine/motor and mounting BOM			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Transmission and differential			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Driveshafts and CV joints			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Chain/belt drive components			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost all materials from catalog			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost all manufacturing processes			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Create detailed drawings			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

6. System 4: Wheels & Tires

Task	Assigned Member	Due Date	Status	Notes
Wheels and hubs BOM			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Tires specification			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Wheel bearings and hardware			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Brake rotors and mounting			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost all materials from catalog			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Create detailed drawings			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

7. System 5: Brakes

Task	Assigned Member	Due Date	Status	Notes
Brake calipers and pistons BOM			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Master cylinder and pedal assembly			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Brake lines and fittings			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Brake pads and hardware			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost all materials from catalog			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost all manufacturing processes			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Create detailed drawings			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

8. System 6: Steering

Task	Assigned Member	Due Date	Status	Notes
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Steering rack and column BOM			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Steering wheel and controls			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Tie rods and steering arms			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Universal joints and bearings			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost all materials from catalog			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost all manufacturing processes			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Create detailed drawings			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

9. System 7: Electronics

Task	Assigned Member	Due Date	Status	Notes
ECU and sensors BOM			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Wiring harness and connectors			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
PCB design and components			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Battery and charging system			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Data acquisition components			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost all materials from catalog			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost PCB manufacturing processes			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Create wiring diagrams			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Calculate assembly time			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

10. System 8: Miscellaneous

Task	Assigned Member	Due Date	Status	Notes
Fuel system components BOM			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cooling system components			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Exhaust system			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Miscellaneous hardware			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost all materials from catalog			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost all manufacturing processes			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Create detailed drawings			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

11. Fasteners

Task	Assigned Member	Due Date	Status	Notes
Catalog all bolts and screws			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Catalog all nuts and washers			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Catalog all rivets and pins			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Assign to appropriate systems			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost from fastener catalog			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

12. Materials Costing

Task	Assigned Member	Due Date	Status	Notes
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Steel tubing and sheet metal			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Aluminum materials			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Composite materials (carbon fiber, etc.)			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Plastics and polymers			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Apply Production Volume Factor (PVF)			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Verify all materials in catalog			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

13. Process Costing

Task	Assigned Member	Due Date	Status	Notes
Machining operations (lathe, mill, drill)			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Welding and joining processes			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Forming and bending operations			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Heat treatment processes			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Painting and surface finishing			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Assembly operations			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Composite layup and curing			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

14. Tooling Costs

Task	Assigned Member	Due Date	Status	Notes
Identify parts requiring tooling			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

Task	Assigned Member	Due Date	Status	Notes
Composite molds and tooling			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Injection molding tools			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
PCB manufacturing tooling			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Apply correct PVF (3000 or 150)			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost from tooling catalog			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

15. Documentation & Drawings

Task	Assigned Member	Due Date	Status	Notes
Create single-page drawings for all parts			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Include dimensions and tolerances			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Show material specifications			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Create assembly drawings			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Exploded views for complex assemblies			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
PCB layouts and schematics			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Composite layup schedules			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Wiring diagrams with lengths			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

16. Add Item Requests (AIR)

Task	Assigned Member	Due Date	Status	Notes
Identify items not in cost catalog			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

Task	Assigned Member	Due Date	Status	Notes
Submit AIRs >48 hours before deadline			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Track AIR responses			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Update cost report with approved items			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

17. Report Quality Control

Task	Assigned Member	Due Date	Status	Notes
Verify no obsolete catalog items used			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Check all material costs			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Check all process costs			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Verify fastener assignments			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cross-check drawings with BOM			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Technical review by engineering leads			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Final cost summary verification			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

18. Cost Scenario Preparation

Task	Assigned Member	Due Date	Status	Notes
Download scenario prompt from FSAEonline			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Analyze scenario requirements			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Develop engineering solution			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

Task	Assigned Member	Due Date	Status	Notes
Perform cost analysis for solution			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Create presentation materials			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Prepare one-page summary			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Practice 5-7 minute presentation			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

19. Report Submission

Task	Assigned Member	Due Date	Status	Notes
Final report compilation			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Upload to FSAEonline cost module			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Submit 1 day before deadline			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Download PDF copy for records			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Prepare printed copy for competition			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

20. Cost Addendum Preparation

Task	Assigned Member	Due Date	Status	Notes
Track changes made after report submission			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Document part modifications			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Calculate cost impact of changes			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Prepare addendum documentation			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

Task	Assigned Member	Due Date	Status	Notes
Submit at team registration			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

21. Competition Preparation

Task	Assigned Member	Due Date	Status	Notes
Assign team members for cost event			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Review cost report thoroughly			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Prepare tools for part removal			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Practice cost scenario presentation			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Prepare supporting materials			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Review competition schedule			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

Cost Summary Tracking

System	Target Cost	Actual Cost	Variance	% of Total
Frame & Body	\$ ____	\$ ____	\$ ____	____%
Suspension	\$ ____	\$ ____	\$ ____	____%
Drivetrain	\$ ____	\$ ____	\$ ____	____%
Wheels & Tires	\$ ____	\$ ____	\$ ____	____%
Brakes	\$ ____	\$ ____	\$ ____	____%
Steering	\$ ____	\$ ____	\$ ____	____%
Electronics	\$ ____	\$ ____	\$ ____	____%
Miscellaneous	\$ ____	\$ ____	\$ ____	____%
Fasteners	\$ ____	\$ ____	\$ ____	____%
TOTAL	\$ ____	\$ ____	\$ ____	100%

Key Deadlines & Milestones

Milestone	Target Date	Actual Date	Status
BOM organization complete			<input type="checkbox"/>
50% of parts costed			<input type="checkbox"/>
All AIRs submitted			<input type="checkbox"/>
Drawings 75% complete			<input type="checkbox"/>
First draft complete			<input type="checkbox"/>
Technical review complete			<input type="checkbox"/>
Cost scenario preparation			<input type="checkbox"/>
Final submission			<input type="checkbox"/>

Team Member Responsibilities

Team Member	Primary Systems	Secondary Tasks	Contact

Important Resources & Links

- **FSAEonline Series Resources:**
<https://www.fsaeonline.com/cdsweb/gen/documentresources.aspx>
 - **Cost Supplement Document:** Available on FSAEonline
 - **Cost Module Guide:** Available on FSAEonline
 - **Online Cost Module:** Access through FSAEonline team portal
 - **Cost Tables/Catalogs:** Available on FSAEonline
 - **Add Item Request Form:** FSAEonline Rules Inquiry interface
-

Weekly Progress Review

Week	Review Date	Progress %	Issues	Action Items
Week 1				
Week 2				
Week 3				
Week 4				
Week 5				
Week 6				
Week 7				
Week 8				

Notes & Comments

Use this space for important reminders, lessons learned, and additional notes

Last Updated: _____

Updated By: _____

FSAE Design Briefing Preparation Checklist

Team Information

- **Team Name:** _____
 - **Competition:** _____
 - **Design Briefing Due Date:** _____
 - **Team Captain:** _____
-

1. Team Overview & Update Section

Task	Assigned Member	Due Date	Status	Notes
Team introduction and history			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Team organization chart			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Current year challenges/goals			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Team photo and key members			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

2. Vehicle Overview Section

Task	Assigned Member	Due Date	Status	Notes
Vehicle specifications sheet			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Mass breakdown analysis			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Vehicle CAD renderings (3-view)			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

Task	Assigned Member	Due Date	Status	Notes
Design philosophy summary			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Key design highlights			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Performance predictions			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

3. Chassis/Frame System

Task	Assigned Member	Due Date	Status	Notes
Design objectives and criteria			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Frame design analysis (FEA)			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Material selection justification			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Manufacturing process description			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Chassis CAD drawings/photos			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Testing and validation results			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

4. Suspension System

Task	Assigned Member	Due Date	Status	Notes
Suspension architecture decision			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Kinematic analysis			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Spring and damper calculations			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Component selection rationale			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Suspension geometry drawings			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

Task	Assigned Member	Due Date	Status	Notes
Testing data and validation			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

5. Powertrain System

Task	Assigned Member	Due Date	Status	Notes
Engine/motor selection justification			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Drivetrain configuration			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Performance calculations			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cooling system design			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Powertrain CAD and schematics			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Dyno testing results (if applicable)			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

6. Electronics & Controls

Task	Assigned Member	Due Date	Status	Notes
Electronic architecture overview			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
ECU and sensor selection			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Wiring harness design			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Data acquisition system			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Control algorithms/tuning			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Electronics testing and validation			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

7. Aerodynamics (If applicable)

Task	Assigned Member	Due Date	Status	Notes
Aerodynamic package design			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
CFD analysis results			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Wind tunnel testing (if done)			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Aero component manufacturing			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Performance impact analysis			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

8. Safety & Ergonomics

Task	Assigned Member	Due Date	Status	Notes
Cockpit design and ergonomics			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Safety systems integration			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Driver controls layout			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Brake system design			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Safety compliance verification			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

9. Manufacturing & Assembly

Task	Assigned Member	Due Date	Status	Notes
Manufacturing process documentation			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Assembly sequence planning			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

Task	Assigned Member	Due Date	Status	Notes
Quality control procedures			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Manufacturing timeline			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Cost analysis and budgeting			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Lessons learned documentation			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

10. Testing & Validation

Task	Assigned Member	Due Date	Status	Notes
Testing plan development			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Component-level testing			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Vehicle-level testing			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Performance validation			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Data analysis and conclusions			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

11. Event Strategy & Performance

Task	Assigned Member	Due Date	Status	Notes
Points goal by event			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Acceleration event strategy			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Skidpad event strategy			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Autocross event strategy			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Endurance event strategy			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

Task	Assigned Member	Due Date	Status	Notes
Overall competition strategy			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

12. Document Preparation

Task	Assigned Member	Due Date	Status	Notes
Design briefing template downloaded			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
All sections drafted			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Graphics and figures prepared			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Technical review completed			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Final proofreading done			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Document submitted			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

13. Presentation Preparation

Task	Assigned Member	Due Date	Status	Notes
Team introduction rehearsed			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Technical Q&A preparation			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Supporting materials organized			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Mock presentation sessions			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	
Member roles defined			<input type="checkbox"/> Not Started <input type="checkbox"/> In Progress <input type="checkbox"/> Complete	

Progress Summary

- **Total Tasks:** ___
 - **Completed:** ___
 - **In Progress:** ___
 - **Not Started:** ___
 - **Overall Progress:** ___%
-

Weekly Review Schedule

Week	Review Date	Attendees	Key Issues	Action Items
Week 1				
Week 2				
Week 3				
Week 4				
Week 5				
Week 6				

Notes and Comments

Use this space for additional notes, issues, or important reminders

Last Updated: _____

Updated By: _____

Maxmo ????

UI/UX

Maxmo Hackmd
:
:

1. Context Menu
2. [TOC]
3. Ctrl+N
4. ?
5. [Paste #1]
7. Hackmd ?HackMD
8. UI
9. (CoT)

????

AI API Markdown
:

1. ()
- 2.
- 3.
4. " " RAG
- 5.
- 6.

????

Hackmd HackMD

-
-

??????????

260317 MIG [] [] []

[] 6061 [] 4043 [] 5356 [] 5356 [] spot weld

[] spot weld []

[] TIG []

[]

[] 4043 [] 5356 [] 5356 []

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