

Design/Build/Fly

Faculty Adviser: Professor Robert H. Liebeck
Advisers: Colin Sledge, John Chen, Paul Parcell, Joseph Hsieh, Kunal Deshpande

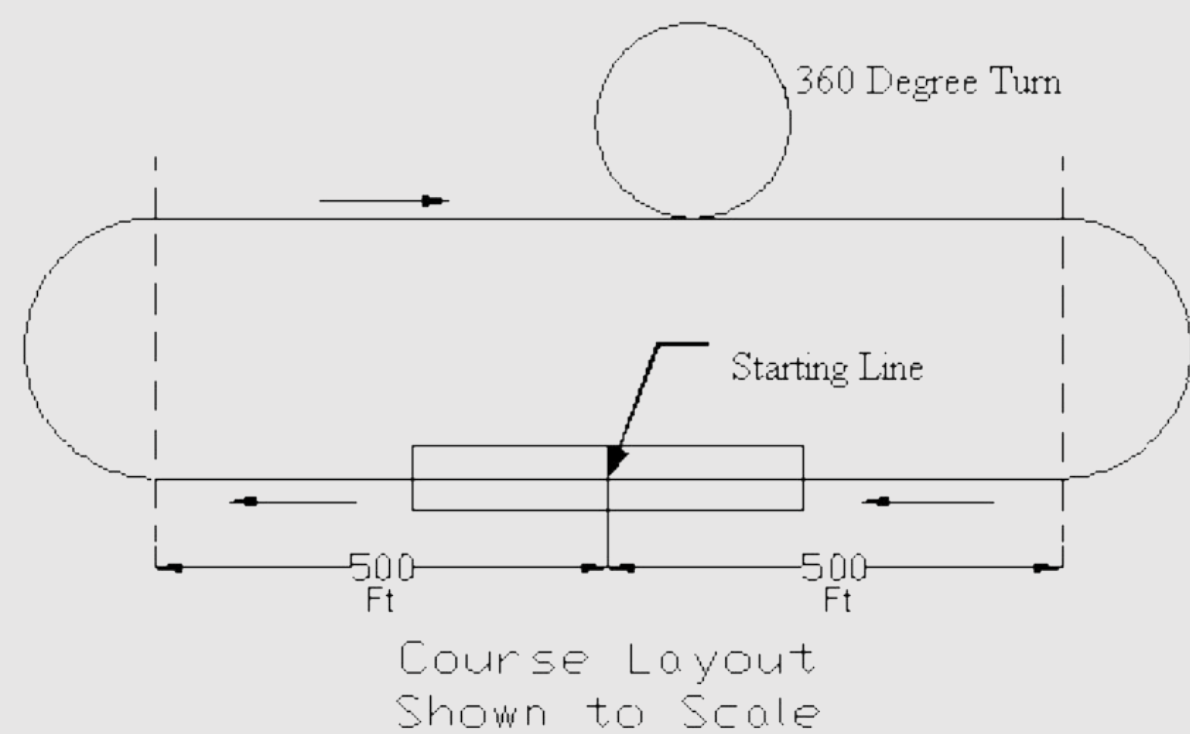
What is Design/Build/Fly?

Design/Build/Fly is a senior design project that allows members to apply their analytical skills and showcase their cooperative efforts in building real-world aircraft. Students must design, manufacture, and demonstrate the flight capabilities of an aircraft that can meet the given requirements for a given year.

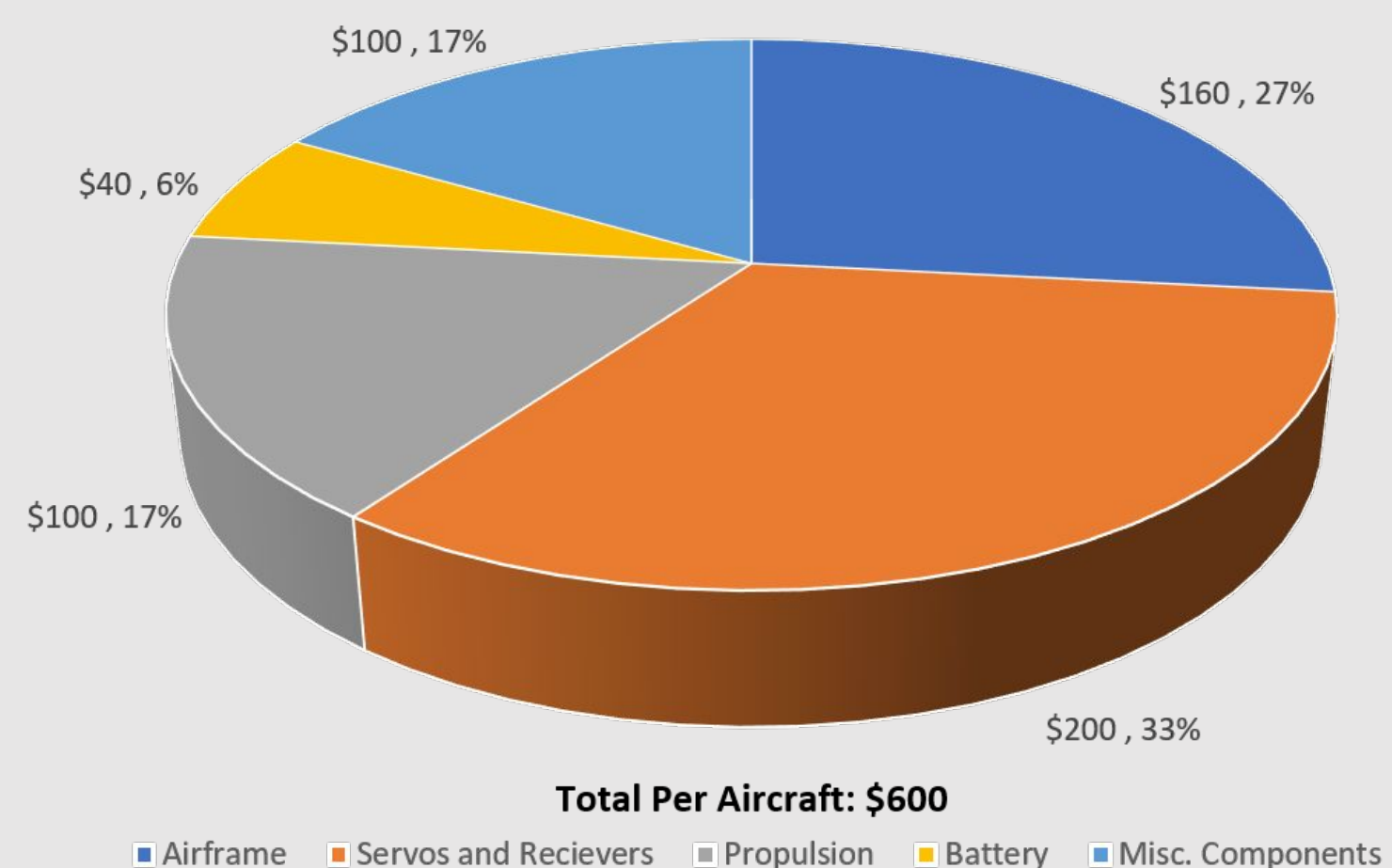
Competition Mission Objectives

Ground Mission	Mission 1
Teams are scored based on how long it takes to load the pool ball payload into the aircraft	Fly 5 laps as fast as possible with no payload
Mission 2	Mission 3
Fly 5 laps with 6 pool balls on board as the payload. After every lap, land and drop 1 of the external pool balls.	Fly 5 laps as fast as possible with the pool cue on board as the payload

Flight Course



Approximate Aircraft Cost



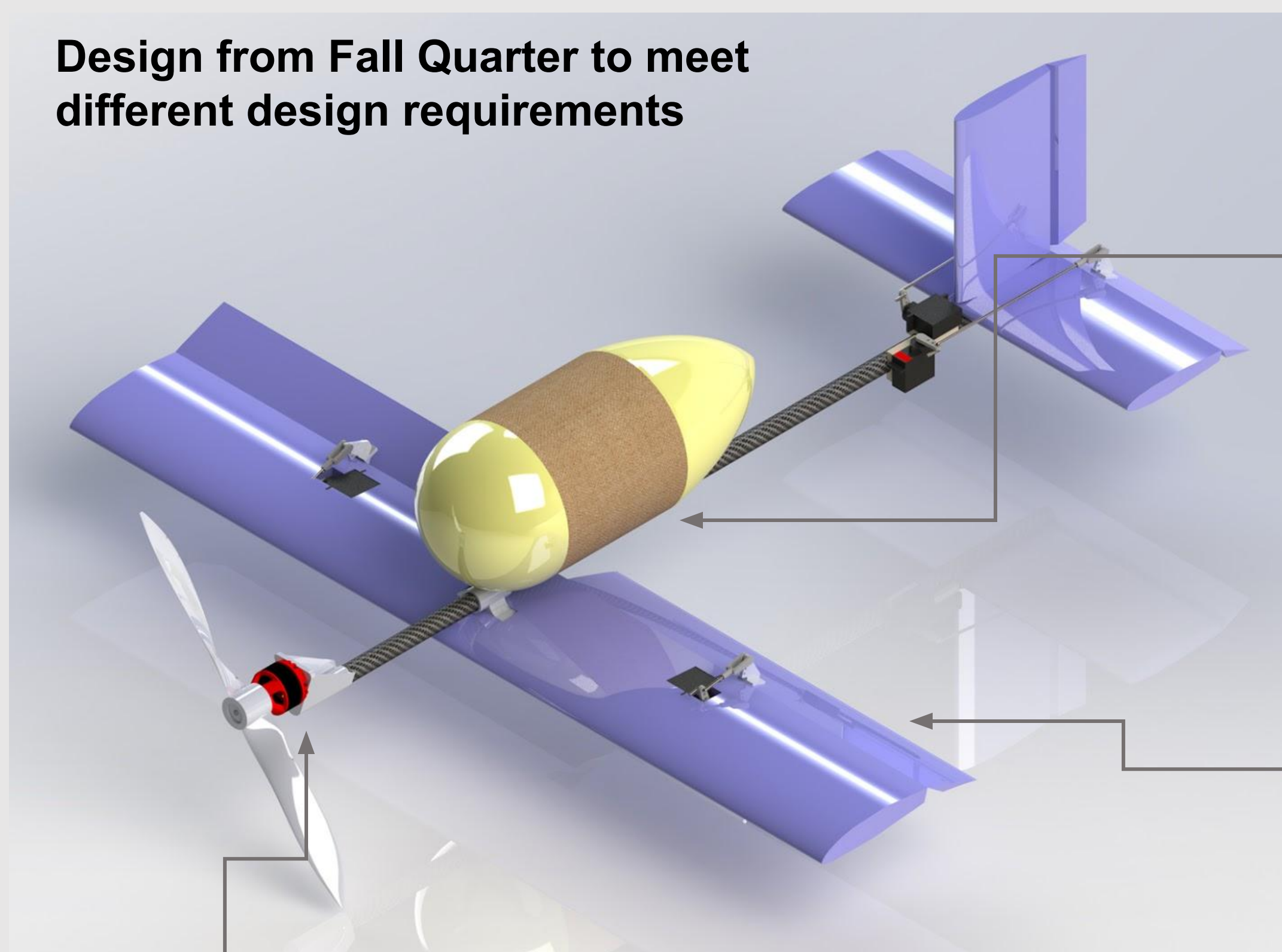
Goals and Objectives

- Design an aircraft based on the given rules and constraints
- Develop and apply innovative, practical, and affordable fabrication techniques
- Document and compile design, manufacturing, and testing process into industry-standard written report

Requirements and Constraints

- 2 external carried pool balls
 - Individually droppable by pilot command
- 4 internally carried pool balls
- Pool cue split in half
- Conventional takeoff and landing

Design from Fall Quarter to meet different design requirements



Molding

- Composite components manufactured using a 3D-printed male mold
- Allows different iterations of layup schedules and composites
- Ensures consistent quality of the part
- Lightweight, aerodynamic and structurally stiff

Foam Wing

- CNC cut wings ensure consistent and quick production
- Fiberglassed surfaces reinforce rigidity
- Lightweight, able to withstand forces during flight and able to withstand landing without a landing gear

Motor Mount

- 3D printed mold for easy part release post-curing
- Lightweight, carbon fiber based motor mount
- Able to withstand vibrations and forces from propulsion

Old Payload

- 6 oz. hockey pucks

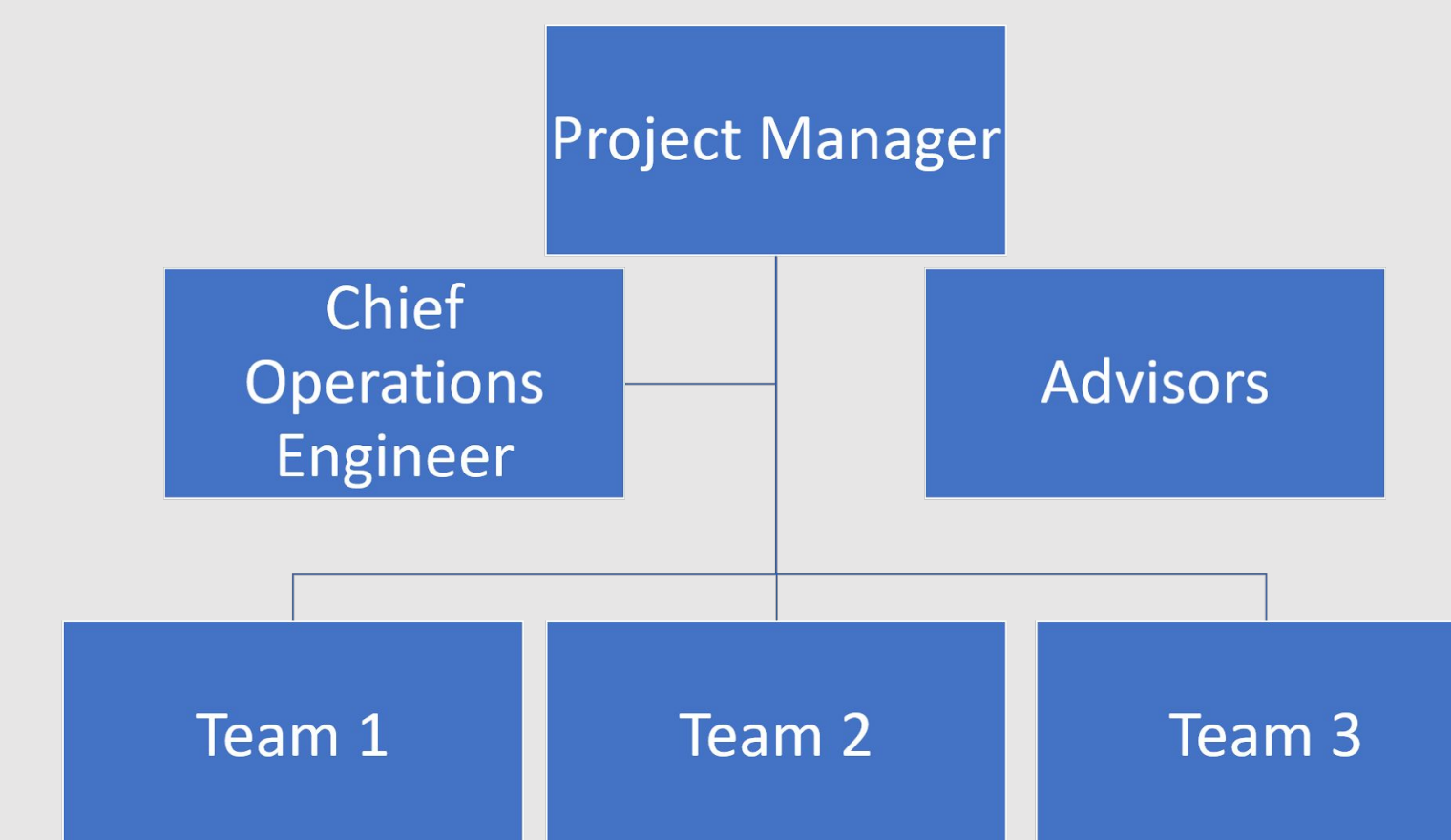


Testbed Aircraft

- A kit aircraft has been chosen to serve as a testbed aircraft for components and technologies that will be placed on the final aircraft.



Team Structure



Team Members

Edgar Amezcuita	Joshua Lee	Vadim Slyusarchuk
Frank Cai	Nghi Nguyen	Benjamin Sorensen
Wayne Chan	Daniel Ovalles	Karen Torres
Richard Cheng	Oguzhan Ozhan	Daniel Tran
Felipe Gutierrez	Brenda Padilla	Kim Tran
Missael Hernandez	Jorge Perez	Arthur Weng
Jong Min Jung	Karl Quilos	Johnny Wong
Justin Kerr	Kelley Quisbert	Matthew Wong
Saho King	Ryan Razo	Huntington Woodman
Derek Kuey	Tarou Seki	

Current Payload

- 6 oz. pool balls



For more information, visit: <https://tinyurl.com/huvzm2n>

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