

Background

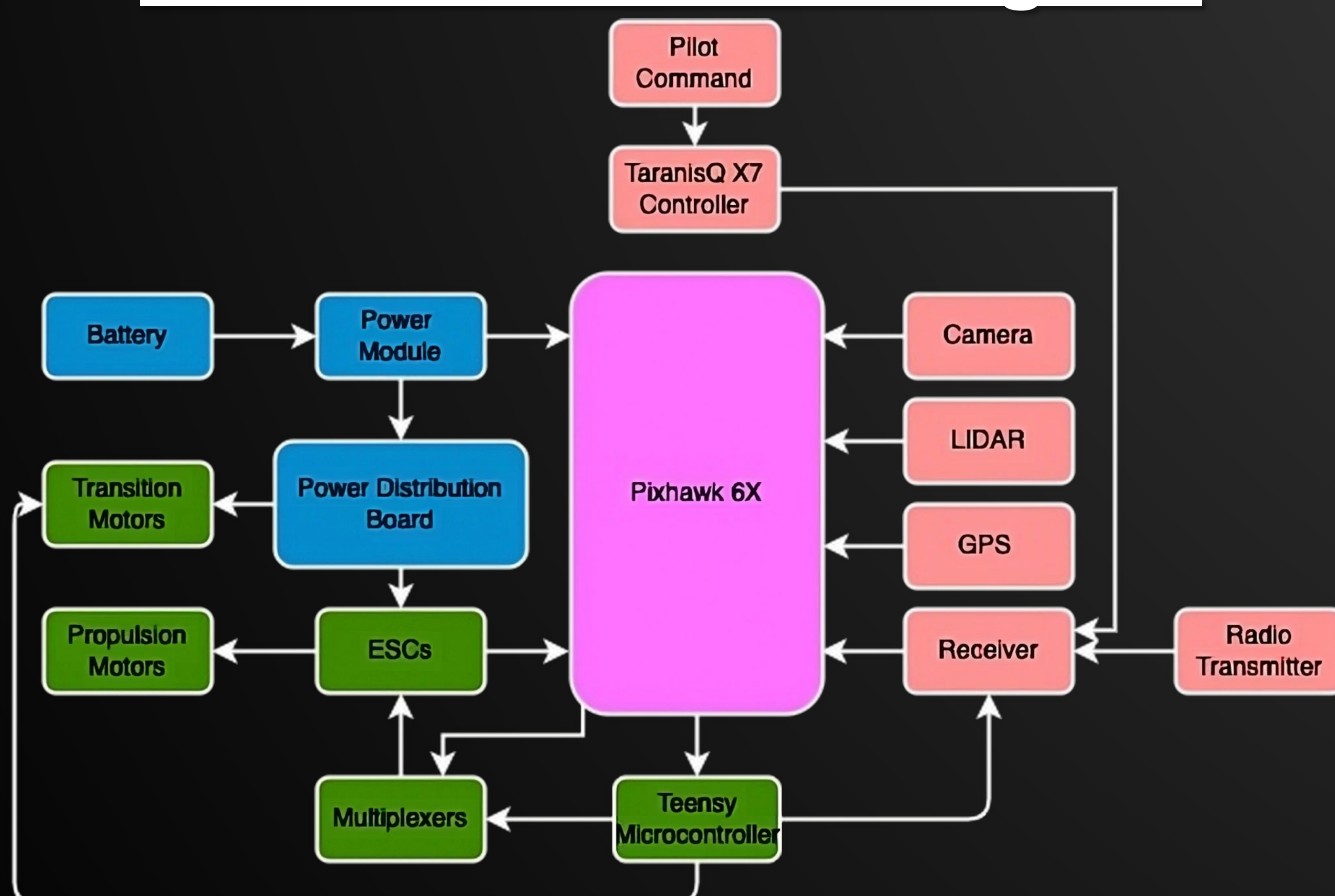
In a post-pandemic world where 37% of Americans use contactless delivery, the need for automated delivery is higher than ever. Quickdrop uses both ground and air transportation to deliver emergency medical goods directly to people's doorsteps. Our innovative transformer vehicle offers an affordable, quick solution to contactless delivery.

Quickdrop combines the advantages of the two existing solutions to contactless delivery: delivery drones and robots. The vehicle's air mode can traverse urban areas to avoid traffic, drastically decreasing delivery time, and its ground mode allows the vehicle to safely navigate populated areas to deliver small packages.

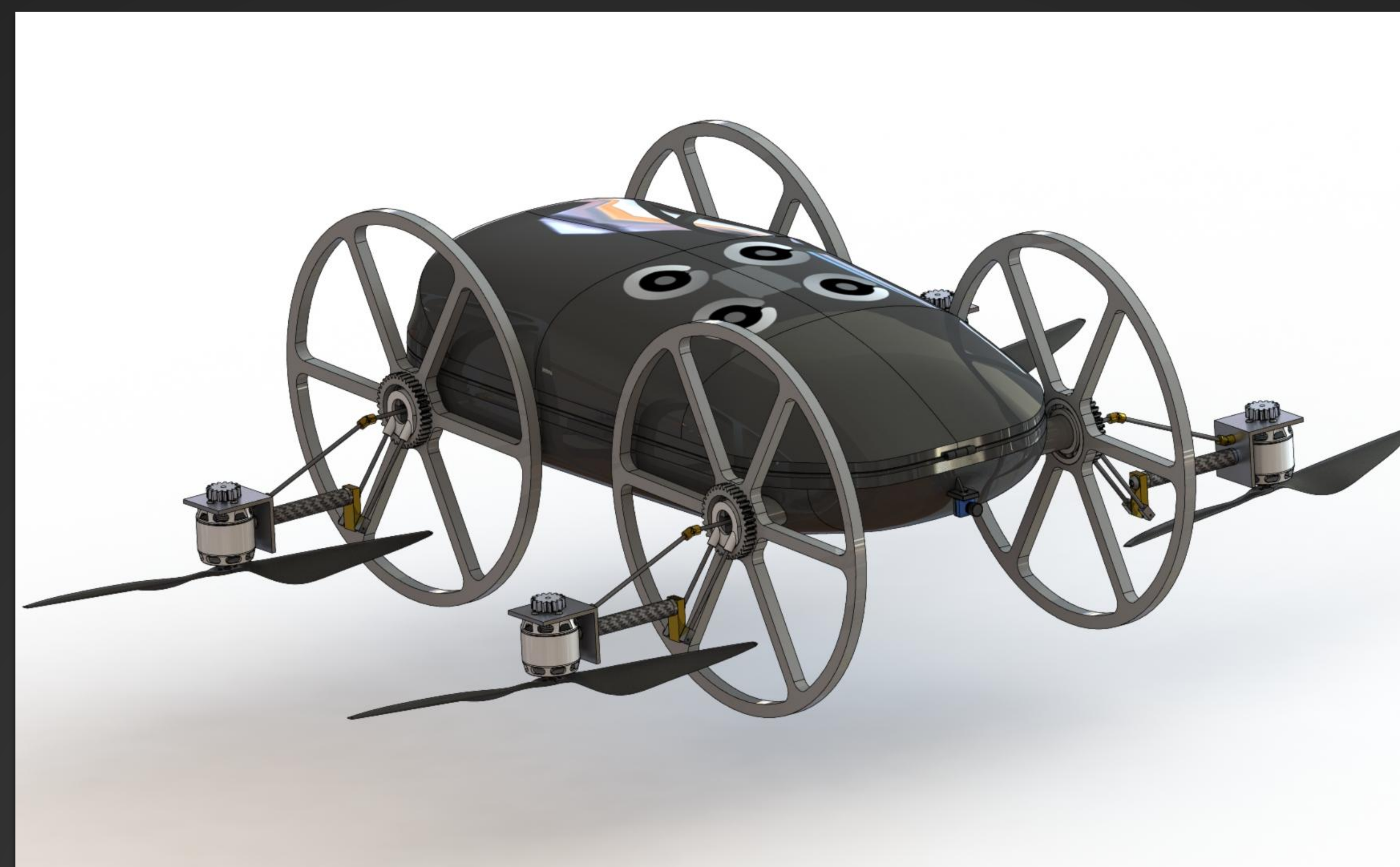
Design Specs

	55 x 30 x 15 cm ³		~20 Minutes
	33 cm (diameter)		91.44 cm (wingspan)
	6.804 kg (chassis)		<25 seconds (Ground Air)
	Air: 10 m/s Ground: 2.25 m/s		1 kg (payload)

Electronics Block Diagram



Prototype V1

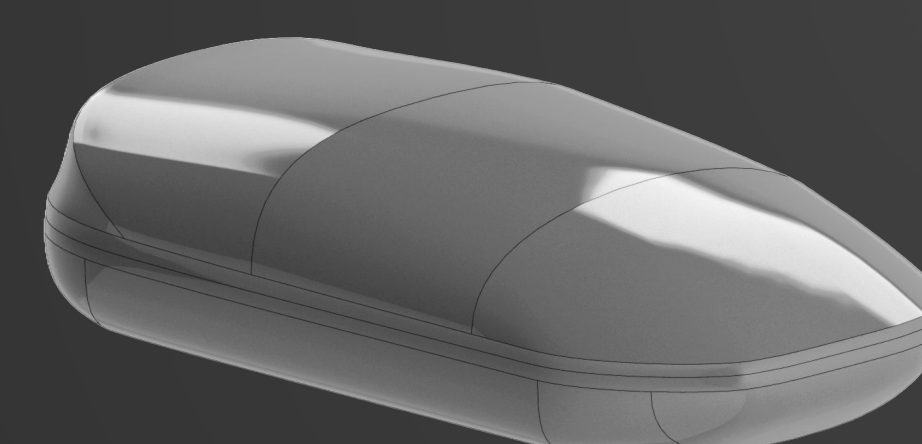


Fabricated Model

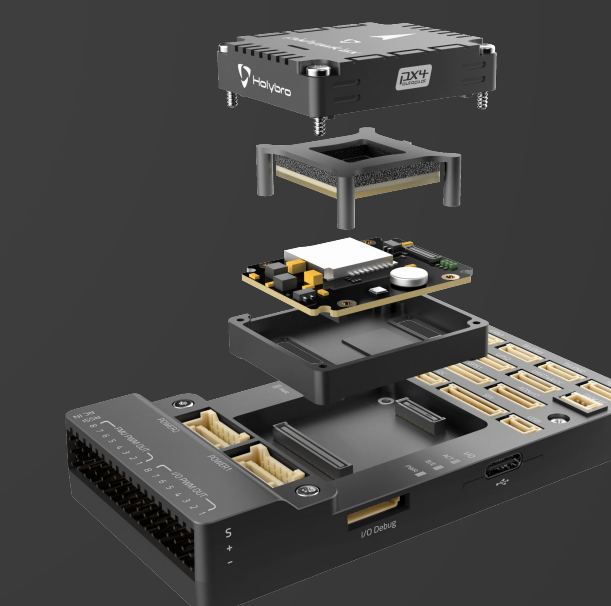
Ground Mode Configuration



Hardware and Key Structures



Custom 3D-Printed Aerodynamic Vehicle Chassis



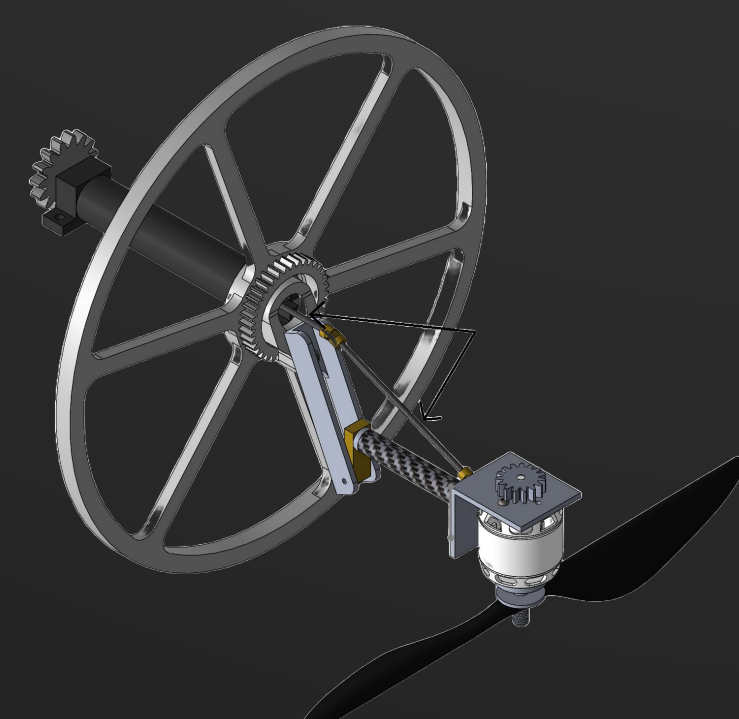
Pixhawk 6X Flight Controller



12V DC Motor 251 RPM w/ Encoder for Vehicle Transition



T-Motor AT3520 KV550 BLDC Motor



Linkage System for Vehicle Transition



Teensy 4.0 Microcontroller: Ground Mode Operation

Linkage System



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