

Companion Drone: Step-by-step build

Concept assembly guide derived from the staged build plan. Not a certified engineering drawing. Prices are estimates (Oct 2026); nothing here is a purchase.

Stage 1

1	Unbox the Cetus Lite kit and charge both batteries. Part C1: BetaFPV Cetus Lite FPV Kit (drone, radio, goggles, 2 batteries, charger) x1 (\$109.99) Buy: BetaFPV
2	Bind the drone to the included radio. Part C1: BetaFPV Cetus Lite FPV Kit (drone, radio, goggles, 2 batteries, charger) x1 (\$109.99) Buy: BetaFPV
3	Plug the ROTG01 receiver into the Pi 4 USB port. Part C2: Eachine ROTG01 UVC 5.8 GHz USB receiver x1 (\$23.99) Buy: Amazon search
4	Set the ROTG01 to the drone's video channel; confirm it shows as a webcam. Part C2: Eachine ROTG01 UVC 5.8 GHz USB receiver x1 (\$23.99) Buy: Amazon search
5	Plug in the USB mini mic. Part C3: SunFounder USB mini mic x1 (\$8.59) Buy: Amazon search
6	Plug in the USB speaker. Part C4: Small USB-powered speaker x1 (~\$12) Buy: Amazon search
7	(Optional) Use the EMEET M0 Plus instead of mic + speaker. Part C5: EMEET M0 Plus speakerphone (optional upgrade) x1 (\$49.98) Buy: Amazon search
8	Fly a short hover indoors in altitude-hold mode. Part C1: BetaFPV Cetus Lite FPV Kit (drone, radio, goggles, 2 batteries, charger) x1 (\$109.99) Buy: BetaFPV

Stage 2

9	Assemble the 3.5-inch frame arms and plates. Part C6: 3.5-inch frame + props x1 (~\$33) Buy: Amazon search
10	Bolt one motor to each arm. Part C8: Brushless motors (3.5-inch class) x4 (~\$50) Buy: Amazon search
11	Mount the F405 mini stack on the center standoffs. Part C7: ArduPilot F405 mini flight stack x1 (~\$60) Buy: Amazon search
12	Solder motor leads to the ESC pads. Part C7: ArduPilot F405 mini flight stack x1 (~\$60) Buy: Amazon search
13	Flash ArduPilot to the flight controller. Part C7: ArduPilot F405 mini flight stack x1 (~\$60) Buy: Amazon search
14	Mount the M10Q GPS on a mast; wire to a UART. Part C10: Matek M10Q-5883 GPS x1 (\$42.99) Buy: Boulder MultiRotor (Matek)
15	Mount the TS5823 VTX + camera with mic. Part C11: EWRF TS5823 VTX + 1000TVL camera with mic x1 (\$31.31) Buy: Amazon search
16	Bind the ELRS receiver; wire to a UART. Part C13: ELRS radio + receiver (RadioMaster Pocket) x1 (~\$80) Buy: Amazon search

17**Fit and register the Remote ID module.**Part C14: Remote ID broadcast module x1 (~\$35) Buy: [Amazon search](#)**18****Mount the ESP32 + amp + 2 W speaker.**Part C15: ESP32 board + amp + 2 W speaker x1 (~\$15) Buy: [Amazon search](#)**19****Replace the Stage 1 receiver with the ROTG01 Pro on the Pi.**Part C12: ROTG01 Pro receiver with audio x1 (\$28.99) Buy: [Amazon search](#)**20****Charge the 4S packs and test return-to-home outdoors.**Part C9: 4S 850 mAh batteries x2 + charger x1 (~\$75) Buy: [Amazon search](#)**21****Fit the props last (check rotation direction).**Part C6: 3.5-inch frame + props x1 (~\$33) Buy: [Amazon search](#)

Stage 3

22**Continue with the Scout build steps.**Part C16: Stage 3 = Grok Scout conversion (see Scout BOM) x1 (~\$300) Buy: [Scout BOM](#)