

TEAM 13: REMOTE CONTROL SHERP

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[1] "All terrain vehicle SHERP N 1200 | Official global website." SHERP® – Official global website.
Accessed: Jul. 28, 2026. [Online]. Available: <https://sherpglobal.com/en/sherp-n-1200-2/>

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PrimalRC wants us to build a 1/8 scale RC SHERP

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Problem Statement

- Market gap for large RC amphibious vehicles
- 1/5 scale SHERP ATV
- \$1500 BoM Cost
- Adjustable tire pressure, waterproof, roll protection, modular cab
- Prototype for sponsor testing and as a basis for production

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Background



- Design and distribute remote control vehicles
- Specialize in 1/5 scale models
- Looking to create a remote control all terrain amphibious vehicle
- More realistic features similar to the full scale vehicles



[2] T. Begglesworth, "RC Car transmitters explained : An overview guide," RC Geeks. Accessed: Aug. 03, 2026. [Online]. Available: <https://www.rcgeeks.com/blogs/news/rc-car-transmitter-overview-setup-guide>

[3] "Primal RC – Premium 1/5 Scale RC," Primal RC. Accessed: Aug. 03, 2026. [Online]. Available: <https://primalrc.com/>

Amphibious Vehicle Overview

- Capable of traveling on land and on water
- Originated during WWII for military landings
- Many have safety and environmental issues



[4] National Transportation Safety Board, "Improving Vessel Survivability and Passenger Emergency Egress of DUKW Amphibious Passenger Vessels," Saf. Recomm. Rep., no. M-19-15 and 16, Nov. 2019, Accessed: Jul. 26, 2026. [Online]. Available: <https://www.nts.gov/investigations/AccidentReports/Reports/MSR1901.pdf>

[5] "International Amphicar Owners Club (IAOC)." Accessed: Jul. 28, 2026. [Online]. Available: <https://www.amphicar.com/>

Unique Features of the SHERP

Very distinct form

Waterproof cabin for passengers and storage

Large ridges on tires act as paddles in water



Equipped with CTIS so driver can change tire pressure while driving

Current Market Offerings



**Kingkong RC All Terrain Transport
Lurker Crawler Truck**



**JJRC Q210 4WD (Four-Wheel
Drive) Amphibious Toy Car**



RC SHERP by CustomRC

- [6] "Kingkong RC 1/10 All Terrain Transport RC Vehicle Truck w/ Metal Chassis KIT /V2 RTR Set - AliExpress 26," aliexpress. Accessed: Jul. 28, 2026. [Online]. Available: <https://www.aliexpress.us/item/3256804989358751.html>
- [7] "JHD 2025 New JJRC Q210 2.4G 4WD RC Car Remote Control Car Four-Wheel Drive All Terrain Off-Road Vehicle Rc Amphibious Toy Car - AliExpress 44," aliexpress. Accessed: Jul. 29, 2026. [Online]. Available: <https://www.aliexpress.us/item/3256812350537336.html>
- [8] "Made by CustomRC (@rcsherp) • Instagram photos and videos." Accessed: Jul. 28, 2026. [Online]. Available: <https://www.instagram.com/rcsherp/>

Goals & Design Considerations

The final product **must**:



Balance speed (20 mph) and enough torque to move in water and cross rough terrain



Be waterproof and meet a rating of IP67



Feature variable pressure tires that can inflate/deflate on command (CTIS)



Include a simple interface for users at any experience level



Be roughly 32" x 20" x 23" (1/5-scale)

The final product **may**:



Include a user operated front mounted camera



Feature a removable back compartment



Incorporate a light bar



Ethics & Impact Analysis



GLOBAL

International shipping costs create accessibility inequality



ENVIRONMENTAL

Water ingress, battery failure, and terrain damage are the leading contamination risks from sourcing and operation



SOCIETAL

The ~\$3000 price point excludes many enthusiasts + reach goal of camera raises privacy concerns



HIGHEST-IMPACT DOMAIN

Environmental: Contamination risk of battery failure outweigh other domains

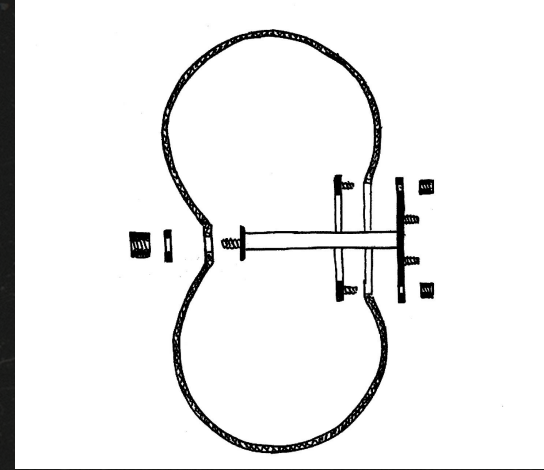


INTERCONNECTION

Global x Environmental: Dual-use risk emerges if user modifies vehicle in a way that increases environmental impact

Solutions Approach: Tire Design

- Tire Edge Retention
- Asymmetric Cross Section
- Central Tire Inflation System (CTIS)
 - Bar-Axle
 - Portal-Axle



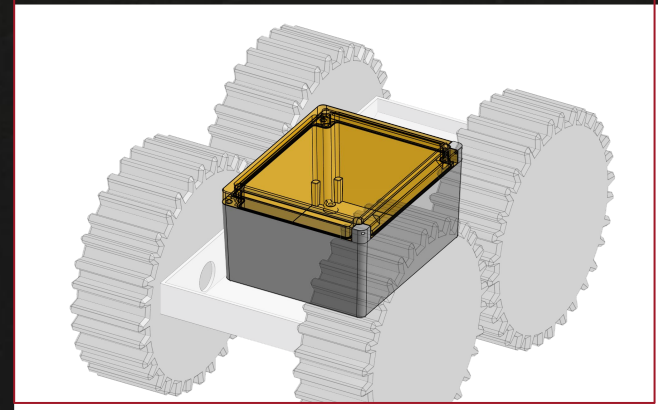
[9] G. A. Maratovich, "All-Terrain Vehicle Wheel," RU2673416C1 Accessed: Jul. 28, 2026. [Online]. Available:

[10] M. Tigges, "Central Tire Inflation Systems for Agricultural Vehicles," presented at the Agricultural Equipment Technology Conference, Louisville, Kentucky, USA: American Society of Agricultural and Biological Engineers, Feb. 2015. [Online]. Available: https://elibrary.asabe.org/data/pdf/6/ctsa2015/LectureSeries_38.pdf

Solutions Approach: Waterproofing

- $\geq$ IP67 rated electronics enclosure with rotary o-rings and gasket
- Optimal Snorkel Location
- One-way seals to prevent ingress

Lurker Internals
(No Ingress Protection)



[6] “Kingkong RC 1/10 All Terrain Transport RC Vehicle Truck w/ Metal Chassis KIT /V2 RTR Set - AliExpress 26,” aliexpress. Accessed: Jul. 28, 2026. [Online]. Available: <https://www.aliexpress.us/item/3256804989358751.html>

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Thank You!

Questions?

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