RJ Tech

Autonomy powered by TAR ROBOTICS

OFF-ROAD AUTONOMY CHASSIS

LUCHS B

BUILT FOR AUTONOMY.
FROM THE WHEELS UP.

A full-size 4×4 drive-by-wire chassis: four in-wheel motors, steering on both axles, 250 kg maximum payload and one documented CAN interface shared across the Luchs family.



Mining sites | Construction sites | Agriculture | Oil pipelines

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Chassis: **RJ Tech Limited** · Autonomy: **TAR Robotics** (tar-robotics.com)
Vehicle images are product renders.

01 · OVERVIEW

A FULL-SIZE OFF-ROAD BASE, BUILT FOR AUTONOMY.

Luchs B carries up to 250 kg across dirt, gravel and slopes, and takes its commands from your computer, not a driver. Four in-wheel motors, steering on both axles, an electro-hydraulic brake and an electric parking brake are all controlled through one documented interface. Mount your sensors and compute on the deck and spend your time on the autonomy, not the vehicle.

250 kg
Maximum payload; 125 kg working payload

40 km/h
Top speed in normal mode; up to 86 km/h in boost mode

30°
Maximum climb, fully loaded

300 mm
Ground clearance

300 km
Range in desert mode; 60 km+ on battery

4× 330 N·m
Peak torque, one in-wheel motor per wheel

Steers like a car, turns tighter than one.

Two EPS units steer the front and rear axles. Choose single (front) or dual Ackermann in software.

Four in-wheel motors.

1.8 kW rated and 5 kW peak at every wheel, 20 kW for the vehicle. 4WD or 2WD, selectable.

Goes the distance.

Battery for a working shift. Desert mode adds a second pack and a 1.5 kW range extender inside the chassis, for up to 300 km.

One interface for the whole family.

The Luchs Chassis Interface (LCI) runs over CAN with the same messages as Luchs A, so the same driver and code drive both.

TWO WAYS TO BUY

Same frame, same interface: you choose how much we deliver.

BARE CHASSIS

A drive-by-wire chassis with the documented LCI interface. Run your own autonomy stack on it.

AUTONOMOUS VEHICLE

The TAR sensor kit and software, multi-source positioning, control station and cloud, integrated.

WHO DOES WHAT

CHASSIS

RJ Tech Limited
Frame, drivetrain, steering, brakes, energy, the LCI interface, spare parts and warranty.

AUTONOMY

TerraAgent Robotics
Sensor kit, perception, planning, vehicle control, control station and fleet cloud.

POSITIONING

Multi-source
GNSS fused with visual-inertial positioning, so the vehicle stays located when satellites drop.

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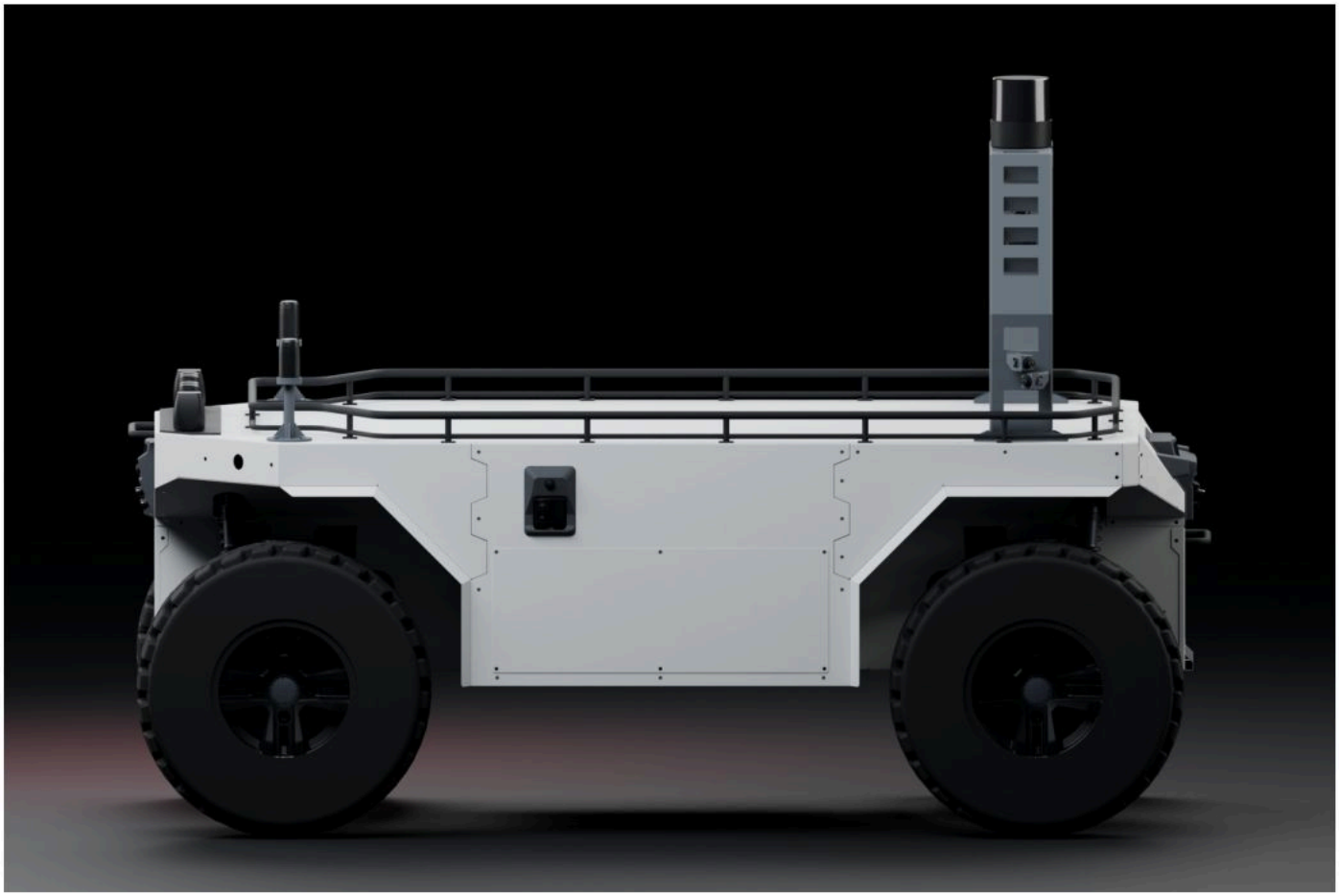
02 · CHASSIS FEATURES

DRIVE, STEERING, BRAKING AND PAYLOAD HARDWARE.



Drive-by-wire control

Send a target speed with a yaw rate or road-wheel angles. The chassis closes the speed, steering and brake loops, enforces its own limits and reports them to your planner.

Independent suspension

Independent suspension at every corner provides 50 mm of travel for off-road work.

Four in-wheel motors

Each wheel has its own motor: 1.8 kW rated, 5 kW peak power and 330 N·m peak torque. Total peak power is 20 kW.

Payload deck

A flat deck over a welded frame carries sensor masts, compute boxes and cargo: 125 kg working payload, 250 kg maximum.

Battery and diagnostics

$LiFePO_4$ packs with battery management. Power-on self-test and continuous diagnostics of battery, motor controllers, steering and brakes; faults are reported over the interface.

Off-road tyres

22×7–10 in off-road tyres and 300 mm of ground clearance for dirt, gravel and rough ground.

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03 · MOTION

STEERING ON BOTH AXLES. DRIVE AT EVERY WHEEL.

Your planner chooses the motion model with a single command, and the reported odometry follows the model you selected. Creep mode gives steady very-low-speed travel on rough ground, slopes, mud, sand and rock.

ACKERMANN	Front axle steers, rear axle stays straight. Predictable, car-like arcs at speed.	**40 km/h normal; 86 km/h boost**
DUAL ACKERMANN	Front and rear axles steer in opposite directions for a much tighter turn.	**Turning circle 4.4 m**
4WD	All four in-wheel motors drive. Maximum traction for slopes, mud and loose ground.	**Default off-road**
2WD	Two motors drive, for efficient running on firm surfaces.	**Firm ground**
SKID-STEER	Left and right wheels at different speeds to turn on the spot.	**On request**



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04 · ENERGY AND RANGE

CHOOSE HOW FAR IT NEEDS TO GO.

Every Luchs B shares the same frame, drivetrain, steering, brakes and interfaces. One battery pack or two: the number of packs sets the range. Desert mode adds a built-in range extender and goes furthest.

	Luchs B Standard One battery pack	**Luchs B Pro** Two packs, longer range	**Desert mode** Two packs + range extender
Battery	**$LiFePO_4$, 72 V 60 Ah**	**$LiFePO_4$, 73 V 127.4 Ah**	**2 packs, about 5 kWh each**
Energy	**4.3 kWh**	**9.3 kWh**	**About 10 kWh + 1.5 kW extender**
Payload power	**12 V / 300 W**	**12 V / 600 W**	**—**
Range, full load	**≥60 km**	**On request**	**Up to 300 km**



NO CHARGER? JUST REFUEL.

No charging station needed. The range extender recharges the packs on the move, so remote sites need no charging infrastructure. The wheels are always driven electrically: quiet, smooth and low on vibration.

Battery first, fuel for distance. On battery alone Luchs B covers 60 km or more at full load. With the range extender running, desert mode reaches up to 300 km.

Built in, deck stays free. Both packs and the range extender sit inside the frame. In desert mode the extender and fuel count against the 250 kg maximum payload.

Same chassis, same interface. Charge with the on-board charger in about 3 h, or swap a pack in under 3 minutes.

2× 5 kWh
battery packs

1.5 kW
range extender, petrol

300 km
desert mode

3 h
full charge

60 km+
battery only, full load

<3 min
battery swap

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05 · AUTONOMY

THE AUTONOMY IS OURS. BUILT BY TAR, ON LUCHS B.

TAR ROBOTICS

RJ Tech builds the chassis. TerraAgent Robotics (TAR) builds what drives it: the sensor kit, positioning, perception, planning, vehicle control and the control station, integrated on Luchs B and delivered as one system. The building blocks already run on real vehicles, on real data.



Positioning powered by multi-source fusion	GNSS with RTK when the sky is open, visual-inertial positioning when it is not, and a LiDAR map as a second source under canopy. When a source drops out, the vehicle degrades step by step and stops safely instead of driving blind.

Core functions	Advanced functions
Route following	Rules by object type
Obstacle stop and avoid	Control station
Positioning that degrades safely	Inspection records
Teleoperation	Fleet management
Event alerts	Docking and charging
Terrain and 3D map	
Self-diagnosis	

Core functions come with the TAR autonomy kit; advanced functions are added for pilot and fleet operation. The bare chassis needs none of this.

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06 · SENSOR MODES

ONE CHASSIS, THREE SENSOR MODES.

Luchs B steps down from LiDAR to cameras only. The mast is optional, and in every mode one millimetre-wave radar at the front and one at the rear act as a safety backup.

1 **Mast and 128-line LiDAR**
A 128-line mechanical LiDAR on the mast; solid-state LiDARs and cameras cover front, rear and both sides, with a dual-light gimbal camera and dual GNSS antennas. The data-collection and ground-truth build.

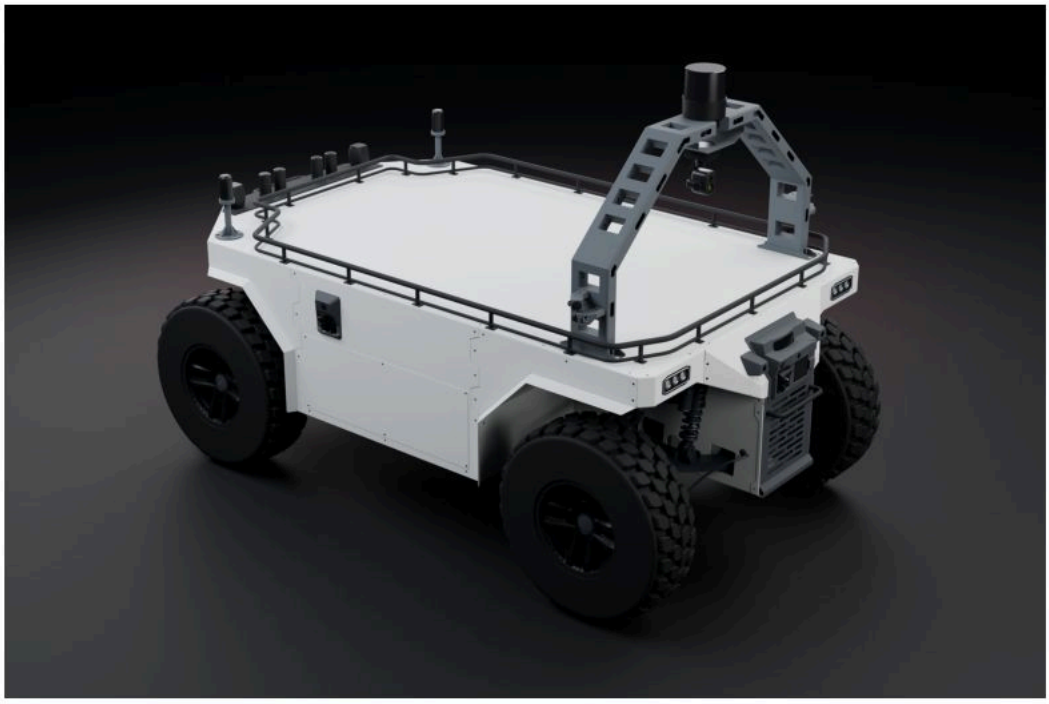
2 **No mast**
The mast is removed. Solid-state LiDARs and cameras still cover front, rear and both sides.

3 **Cameras only**
Pure-vision navigation: cameras cover front, rear and both sides, with dual-antenna GNSS, on the same frame, power and CAN interface.

LiDAR first, then vision. The 128-line LiDAR records the ground truth that trains and checks the camera models. As they are proven, the mast comes off.

ALREADY RUNNING ON REAL VEHICLES

- Camera-first perception: five cameras and LiDAR fused into one bird's-eye view with 3D detection
- Dense 3D reconstruction of the road from three front cameras, no LiDAR
- Drivable ground on snow-covered forest tracks and dirt trails
- LiDAR map localisation at 20 Hz, the second source of position when satellites drop out
- Planning around obstacles, junctions, U-turns and parking



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07 · APPLICATIONS

WHERE IT WORKS.

Mining and construction sites, farmland and pipeline corridors: one chassis runs the whole mission loop, far from roads and far from the depot.

Plan route → **Dispatch** → **Patrol** → **Detect** → **Alert** → **Report**

Same vehicle, same mission loop in every domain.

Mining · **Construction** · **Agriculture** · **Pipelines** · Forest · Grassland · Desert · Snow · Night



MINING SITES

Patrols haul roads, benches and site perimeters on a fixed route, day and night.

- Scheduled route patrol on loose and steep ground
- Event alerts with photo and exact position
- 3D terrain map of the area it covers



CONSTRUCTION SITES

Runs the after-hours round and records what changed, without sending a person out.

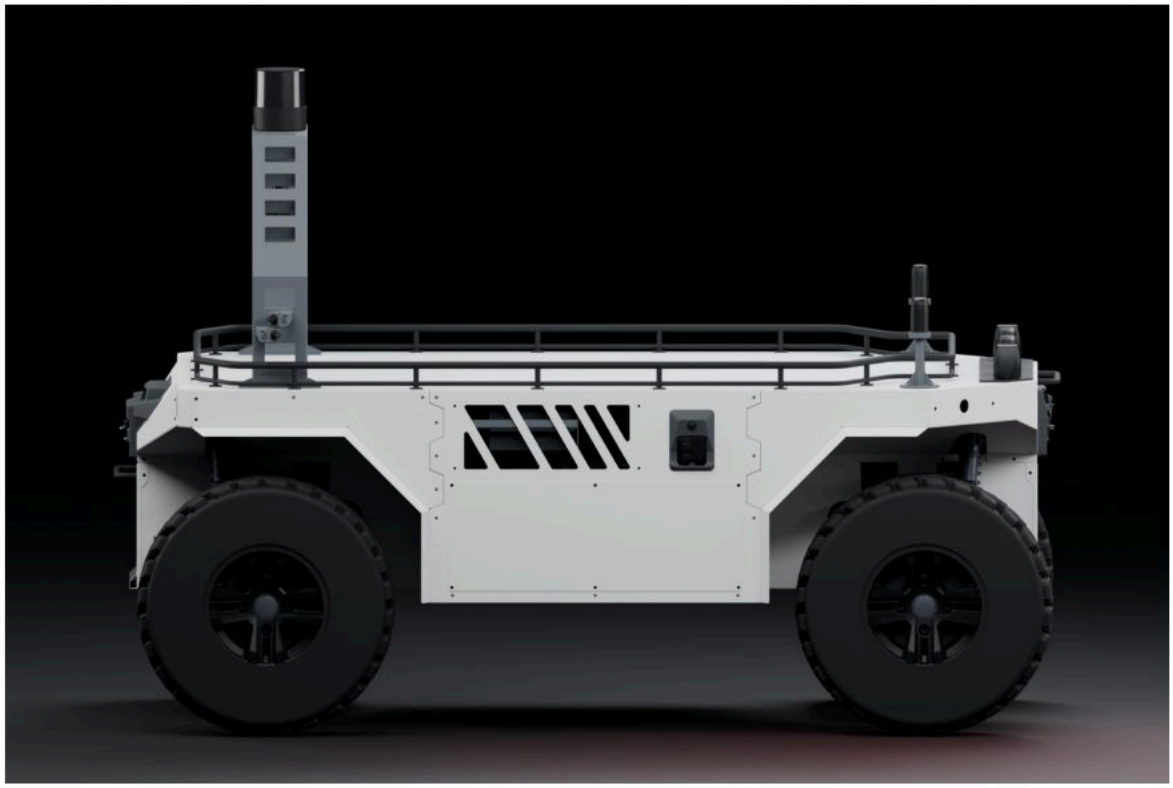
- After-hours security and progress rounds
- Inspection records with time, place and images
- Different rules for people, vehicles and objects



AGRICULTURE

Drives between rows and across fields, carrying sensors or tools on the flat deck.

- Row following with car-like steering
- Up to 125 kg of daily payload on the deck
- Pure-vision navigation for cost-sensitive fleets



08 · PIPELINE PATROL

PATROL THE LINE. DAY AND NIGHT.



Long energy lines, day and night: every event is logged with a photo and its exact position, then sent to the control room. The built-in range extender keeps Luchs B on the service track far from any charging point.

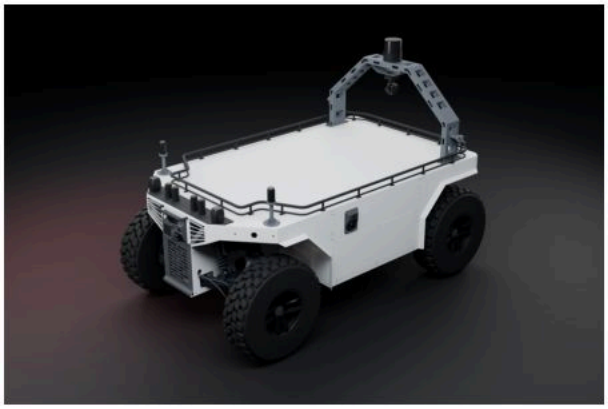
1 Patrol the line
Follows the pipeline service track

→

2 Spot what is wrong
Thermal camera, LiDAR, AI detection

→

3 Alert and report
Photo and position to the control room



300 km
desert mode

60 km+
battery only, full load

1.5 kW
range extender, petrol

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09 · FLEET AND CLOUD

ONE VEHICLE, OR A WHOLE FLEET.

Vehicles link up in the field over mesh radio and report to a cloud platform on your own Alibaba Cloud or AWS account.

FLEET MESH IN THE FIELD

1 Spread out	→	2 Relay	→	3 Self-heal
No cell coverage out here		Every vehicle relays for the others		A link drops, data finds a new path

Vehicle-to-vehicle mesh radio keeps the whole fleet in touch with the control station, far beyond any mobile network.

FROM THE VEHICLE TO YOUR CLOUD

1 On the vehicle	→	2 Into your cloud	→	3 On any screen
Edge computer, cameras, LiDAR. On board: 4G / 5G, Wi-Fi or mesh radio		Hosted on Alibaba Cloud or AWS, in your own account		Web console and phone app

Up to the cloud ↑
Position, battery and fuel, status, live cameras

Down to the vehicle ↓
Routes, missions, remote control

The platform runs in your own cloud account: maps, video and logs stay with you.



10 · TECHNICAL DATA

VEHICLE

External dimensions	1990 × 1150 × 800 mm
Chassis weight	237 kg
Working / max. payload	125 / 250 kg
Ground clearance	300 mm
Tyres	22×7-10 in, off-road
Suspension	Independent, 50 mm travel

PERFORMANCE

Max. speed	40 km/h normal mode; 86 km/h boost mode
Max. climb	30° at full load
Turning circle	4.4 m, dual Ackermann
Endurance	≥60 km at full load; up to 300 km in desert mode

DRIVE AND STEERING

Drive	4 in-wheel motors, 1.8 kW rated / 5 kW peak each
Peak torque	330 N·m per wheel
Steering	Dual EPS; single or dual Ackermann
Brakes	Electro-hydraulic + electric parking brake
Modes	4WD / 2WD; skid-steer on request; creep mode

ENERGY

Battery	$LiFePO_4$, 72 V 60 Ah (4.3 kWh) or 73 V 127.4 Ah (9.3 kWh)
Desert mode	2 packs + 1.5 kW petrol range extender
Payload power	12 V / 300 W (Standard), 12 V / 600 W (Pro)
Charging	About 3 h on-board; pack swap under 3 min

INTERFACE AND PROTECTION

Host interface	CAN 500 kbit/s, LCI v1.0, heartbeat and live limits
Software	ROS 2 / ROS 1 / C++ SDK
Ingress protection	IP67 battery, motors, connectors; IP65 controllers

AUTONOMY BUILD (TAR)

Sensor modes	Mast + 128-line LiDAR / LiDAR + cameras / cameras only
Safety backup	Radar front and rear, all modes
Positioning	GNSS + visual-inertial
Fleet	Control station, cloud, mesh radio

Live limits and LCI functions are available with the LCI firmware. Specifications depend on configuration and may change; ground clearance is the current design value. Black is the standard version; white is the cooling version with a heat-protective coating.

Photos: Mining, Abdul Basit / Unsplash · Construction, Jamie Street / Unsplash · Agriculture, Bernd Dittrich / Unsplash · Oil pipeline, Arthur T. LaBar, "Dalton Highway and Trans-Alaska Pipeline", CC BY 2.0, via Wikimedia Commons.

REQUEST A QUOTE. WE WILL CONFIGURE THE CHASSIS FOR YOUR APPLICATION.

RJ Tech Autonomy powered by TAR ROBOTICS

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