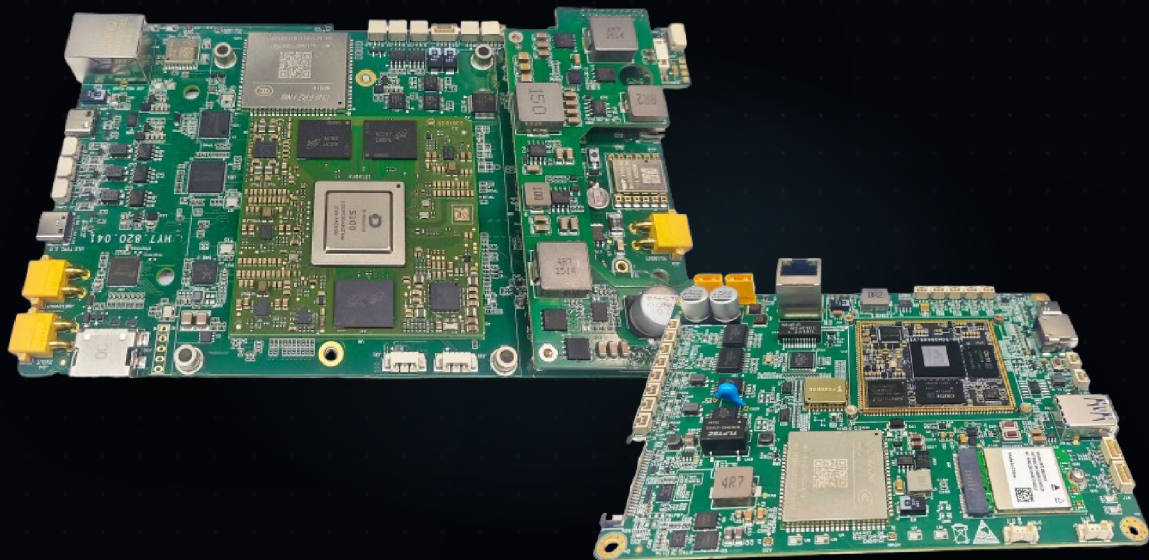


TX SERIES ROBOT BRAINS

A BRAIN THAT LETS YOUR ROBOT FIND ITS OWN WAY

A two-part controller for legged, wheeled and humanoid robots: a high-compute brain that sees, maps and plans, and a rugged cerebellum that keeps every motor in step. Add the navigation stack and control platform, and the robot patrols, delivers or guides on its own.

BRAIN · TX-1 / TX-2



CEREBELLUM · TX-3

AI COMPUTE

**Up to 157
TOPS**

MOTOR BUSES

**4× CAN FD +
4× RS485**

POWER INPUT

9–60 V DC

OPERATING RANGE

–25 to 70 °C

FITS

**Unitree Go2 ·
A2 · B2**

BRAIN AND CEREBELLUM, ON SEPARATE BOARDS

In people, the brain decides and the cerebellum co-ordinates movement. The TX series splits the work the same way, so heavy AI work never has to compete with balance and motor control.

TX-1 / TX-2

The brain thinks

Cameras, LiDAR, AI models, mapping, route planning, speech and the 5G link to the control platform.

TX-3

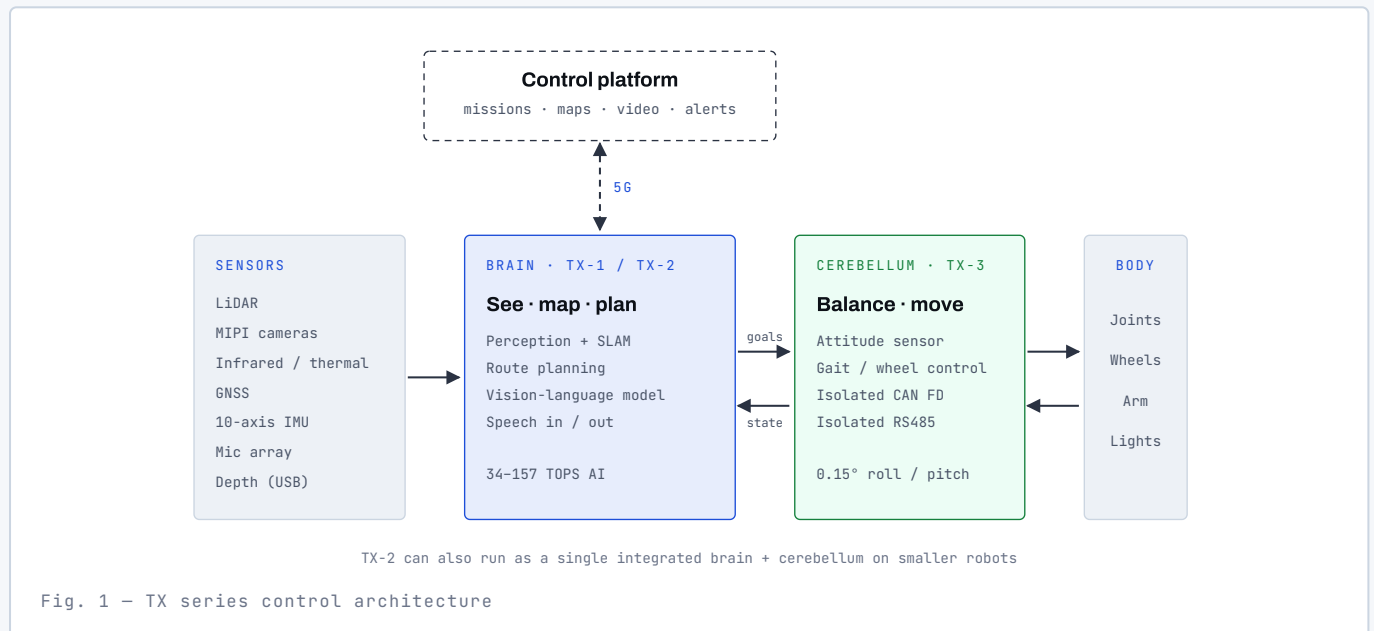
The cerebellum moves

Reads an industrial attitude sensor and drives the motors over isolated CAN FD and RS485, so motor faults and back-EMF stay away from the electronics.

ANY

One brain, many bodies

Fits quadrupeds, wheeled-legged robots, humanoids and unmanned ground vehicles. Motors with different interfaces can share a robot.



MADE FOR UNITREE GO2, A2 AND B2

We fit the TX set to the Unitree quadrupeds we already supply, so you get the robot and its autonomy from one South African team.



Unitree Go2

Compact quadruped for patrols, guided tours, research and education.



Unitree A2

Industrial quadruped for inspection and security rounds.



Unitree B2

Heavy-duty industrial quadruped for tough sites and bigger payloads.

THREE BOARDS. PICK THE BRAIN, ADD THE CEREBELLUM.

Two brains at different compute levels, and one cerebellum that pairs with either. All three take a wide DC input straight from the robot's battery and work from -25 to 70 °C.



TX-1

BRAIN · NVIDIA ORIN

The flagship brain. Choose 34, 67, 117 or 157 TOPS of AI compute, with up to eight Cortex-A78AE cores and four Cortex-R52+ real-time cores. Headroom for LiDAR mapping, multi-camera vision and on-board AI models side by side.

AI	34 / 67 / 117 / 157 TOPS	CPU	6 or 8× A78AE · 120 KDMIPS
I/O	4× CAN FD · 2× UART · 3× USB-C	Network	2× GbE + 2× 100M · 5G
Sensing	10-axis IMU + GNSS	Power	16–60 V · <40 W · 185 × 110 mm

BEST FOR Patrol and inspection robots carrying LiDAR plus several cameras, or any job that needs the most AI on board.



TX-2

BRAIN · D-ROBOTICS S100

A brain with 80 or 128 TOPS, built as an integrated brain-and-cerebellum controller, so smaller robots can run on one board. Wi-Fi and Bluetooth are built in alongside 5G, and two USB 3.0 ports take extra depth cameras or storage.

AI	80 / 128 TOPS	CPU	6× A78AE · 100 KDMIPS
I/O	4× CAN FD · 2× UART · 3× USB-C	Network	2× GbE + 1× 100M · 5G · Wi-Fi · BT
Sensing	10-axis IMU + GNSS	Power	16–60 V · <40 W · 185 × 110 mm

BEST FOR Delivery, guide and service robots that want strong AI, local wireless and the option of a single board.



TX-3

CEREBELLUM · ROCKCHIP

The cerebellum looks after balance and movement. An industrial attitude sensor feeds the control loop, and isolated motor buses let you mix motor brands without risking the board. It runs from as little as 9 V.

CPU	4× A76 + 4× A55 · 90 KDMIPS	AI	6 TOPS
Motors	4× iso CAN FD + 4× iso RS485	Attitude	Roll/pitch 0.15° · heading 0.3°
Network	1× GbE · 5G · Wi-Fi · BT	Power	9–60 V · <40 W · 145 × 110 mm

BEST FOR Pairing with TX-1 or TX-2 on quadrupeds, wheeled-legged robots and UGVs, or as a rugged motion controller on its own.

HOW A TX ROBOT FINDS ITS WAY

Mapping, positioning, planning and safety all run on the TX brain. This is the loop every patrol, delivery or guided tour goes through, from the first site walk to docking for a charge.

01

Map the site once

Walk or drive the robot round the site once. LiDAR and cameras build a 3D point-cloud map you can view and edit from the platform.

LIDAR · CAMERAS · POINT-CLOUD MAP

02

Know where it is

Live scans are matched to the map and blended with the 10-axis motion sensor and GNSS. QR markers at corners and on long runs cancel drift from wheel and IMU readings.

SLAM · IMU + GNSS · QR MARKERS

03

Plan the route

You schedule missions from the platform. The planner picks the path and adjusts it on the move when the way ahead changes.

MISSION SCHEDULER · PATH PLANNER

04

Hold the line

A route-deviation monitor compares the robot's track with the plan, and corrects it when obstacles or uneven ground push it off course.

DEVIATION MONITOR · AUTO-CORRECTION

05

See and avoid

360° perception picks up people, vehicles and obstacles; the robot steers round them or stops. Electronic fences keep it in its area and raise an alarm on a crossing.

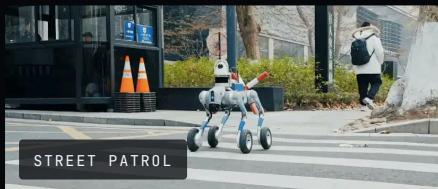
360° PERCEPTION · E-FENCE

06

Charge itself

On low battery it heads back to its charging pod, docks, and carries on afterwards. Depart, patrol, recharge, with nobody involved.

AUTO-RETURN · CHARGING POD



FOLLOW ME

Tell it what to do in plain words

A vision-language-action model takes a plain instruction such as "follow the person ahead and tell me where they are". The robot finds the person, keeps pace through turns and reports direction and distance as it goes.



EDGE + CLOUD

Slow thinking in the cloud, fast reflexes on the robot

IN THE CLOUD

Understands the job

Works out what you asked for and makes the mission decisions: the target, where to go next, when to report.

ON THE ROBOT

Drives the robot

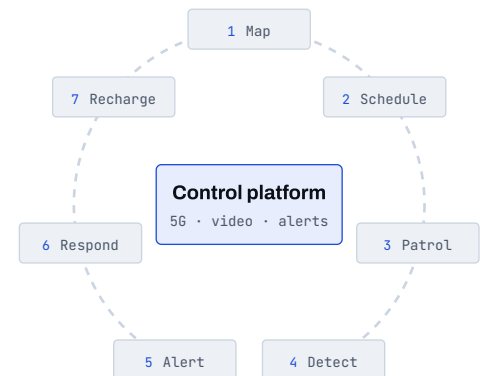
Turns camera input straight into a path and handles moment-to-moment steering and obstacle avoidance.

SIGNAL LOST?

The robot doesn't freeze. On-board avoidance and following keep running until the link is back.

ONE SCREEN FOR THE WHOLE FLEET

- **Unmanned patrols, 24/7.** Missions run on a schedule around the clock, with live HD video and sensor data streamed back over 5G.
- **AI hazard spotting.** Detectors flag blocked fire exits, illegal parking and unsafe charging cables, and attach the evidence.
- **Alerts that close the loop.** Every alert is tracked from detection to response to done.
- **Remote takeover.** An operator can drive any robot, then hand it back to autonomy.
- **Map management.** View and update point-cloud maps remotely.
- **Remote power and audio.** Wake or switch robots off over 5G, and speak through the loudspeaker.



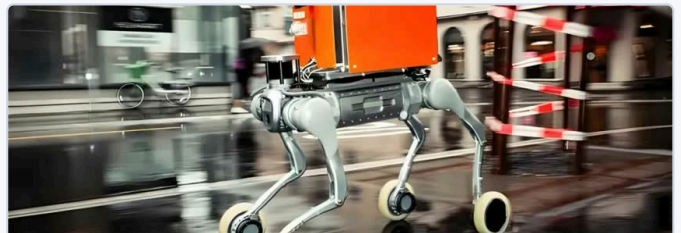
BUILT FOR REAL JOBS



ESTATES · INDUSTRIAL PARKS · FACTORIES · POWER PLANTS

Security patrols

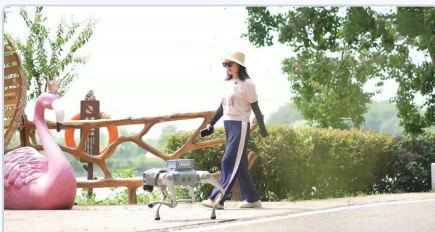
Round-the-clock patrols that replace repetitive and high-risk rounds: blocked fire exits, illegal occupation and crowds flagged, loudspeaker warnings, alerts in the control room.



MALLS · OFFICE PARKS · ESTATES · WAREHOUSES

Last-metre delivery

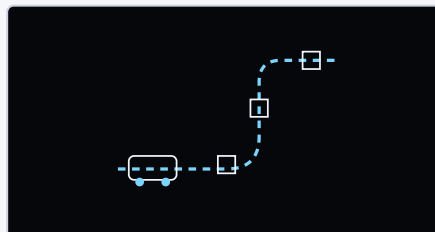
A sealed, lockable compartment delivers door to door, with lift and access-control integration, electronic fences, collision warnings and self-charging.



MUSEUMS · VISITOR CENTRES · TOURISM

Guided tours

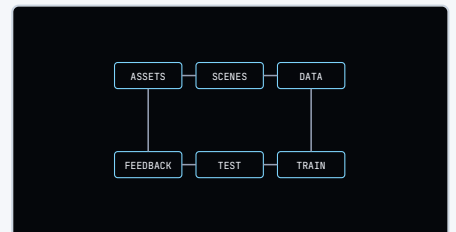
Planned routes with commentary in several languages, questions answered from a knowledge base, and follow-me on request.



VEHICLE PLANTS · YARDS · LOGISTICS

Yard and vehicle moves

Fixed-route autonomy: path tracking, obstacle and pedestrian stops, automatic parking. QR markers keep long runs exact.



UNIVERSITIES · TVET · RESEARCH LABS

Education and research

An open development platform with an NVIDIA Isaac Sim simulation pipeline: train in simulation before real-world testing.

SIDE BY SIDE

SPECIFICATION	TX-1	TX-2	TX-3
ROLE & COMPUTE			
Role	Brain	Brain (integrated brain + cerebellum)	Cerebellum
Platform	NVIDIA Orin	D-Robotics S100	Rockchip
CPU	6 or 8× Cortex-A78AE	6× Cortex-A78AE	4× Cortex-A76 + 4× Cortex-A55
Real-time cores	4× Cortex-R52+	4× Cortex-R52+	—
CPU performance	Up to 120 KDMIPS	Up to 100 KDMIPS	90 KDMIPS
AI compute	34 / 67 / 117 / 157 TOPS	80 / 128 TOPS	6 TOPS
INTERFACES			
Camera	MIPI, signal-enhanced, dual	MIPI, signal-enhanced, dual	MIPI, signal-enhanced
CAN / RS485	4× CAN FD	4× CAN FD	4× isolated CAN FD, 4× isolated RS485
USB	1× USB 3.0-C, 2× USB 2.0-C	2× USB 3.0-C, 1× USB 2.0-C	USB 3.0-C, USB 3.0-A, 2× USB 2.0
Ethernet	2× 1000BASE-TX, 2× 100BASE-TX	2× 1000BASE-TX, 1× 100BASE-TX	1× 1000BASE-TX
UART	2 channels	2 channels	1 channel
Audio	Noise-cancelling mic, 2× 4 Ω 3 W	Noise-cancelling mic, 2× 4 Ω 3 W	—
SENSING & COMMUNICATION			
Motion sensors	Accel, gyro, magnetometer, barometer	Accel, gyro, magnetometer, barometer	Attitude: roll/pitch 0.15°, heading 0.3°
Positioning	GNSS	GNSS	—
Wireless	5G	5G, Wi-Fi, Bluetooth	5G, Wi-Fi, Bluetooth
Remote power	5G and CAN sleep / wake	5G and CAN sleep / wake	5G and CAN sleep / wake
POWER & ENVIRONMENT			
Supply voltage	16–60 V DC	16–60 V DC	9–60 V DC
Power draw	<40 W (157 TOPS)	<40 W (128 TOPS)	<40 W
Standby current	<3 mA	<3 mA	<3 mA
Operating / storage	–25 to 70 °C / –25 to 80 °C	–25 to 70 °C / –25 to 80 °C	–25 to 70 °C / –25 to 80 °C
Board size	185 × 110 mm	185 × 110 mm	145 × 110 mm

Specifications as of October 2026; they may change without notice.

TELL US WHAT YOUR ROBOT NEEDS TO DO

Send us the robot, the site and the job: patrol, delivery, guiding or research. We'll come back with the right TX set-up, the sensors to go with it, and a quote.

mcmrobotics.co.za/robot-brain →

GEORGE: HEAD OFFICE & OPERATIONS

Jura Lands, P79/202 Beach Rd, Hansmoeskraal, George, 6529
+27 44 878 2917 · info@mcmrobotics.co.za

MIDRAND: OPERATIONS

108 Roan Crescent, Randjespark, Midrand, 1685
Sales: +27 12 030 3451

CAPE TOWN: OPERATIONS

Opens November 2026