

MOBILE ROBOT DEVELOPMENT

FAST-TRACKED



The low-risk, low-cost mobile robot core

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ORMi, by Active8 Robots, comprises three mobile robot platforms each in either 24V or 48V. The ORMi family has been specially designed to take the hard work out of AGV, AMR and AIV development, so you can go from build-to-bot fast.

The time-consuming tasks normally associated with sourcing components, determining compatibility, configuring hardware and programming software has been taken care of by us, for you.

Mobile robot development has never been made easier!

The **ORMi** family



ORMi KIT

Ready-to-assemble
component kit

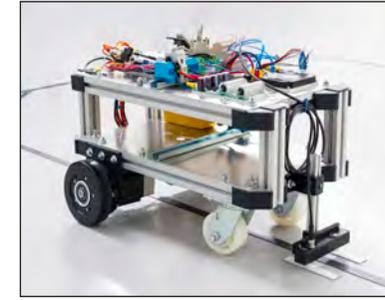
A comprehensive and fully compatible range of the fundamental components required to build your mobile robot from scratch. All parts are selected, tried and tested by our engineers for performance and reliability.



ORMi WIRED

Pre-assembled & pre-wired
component kit

A part-built unit comprising ORMi KIT with additional mechanical and electrical components all pre-wired and mounted onto a stainless steel baseplate by our engineers, all set for you to continue the build and integrate with your own chassis.



ORMi GO

Built & configured
functioning unit

A mobile unit comprising ORMi WIRED fixed to a robust aluminium chassis with servo motors, mounting brackets, batteries and wheels with options for all payloads up to 2000kg. A ready-to-GO platform primed by our engineers.

Need a complete solution?

[CE Marked engineered system & accompanying training program](#)

For more demanding or complex projects we can design, build and configure a complete system to match your exacting specification. We will also deliver a comprehensive training program covering all aspects of safety, operation and maintenance.

ORMi
BESPOKE

Why ORMi ?

The ORMi family is a flagship innovation for AMR, AGV and AIV development. Here are just a few reasons why you should go ORMi.



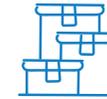
LOW COST

Save tens of thousands of pounds on a mobile robot with a low capital outlay compared to buying an off-the-shelf product.



LOW RISK

Build up your mobile robotics R&D knowledge and expertise, economically, in a market where experience is in short supply.



CONVENIENT

Choose which stage of the development process is best for you to start from with three options from the ORMi family.



TIME SAVING

Gain weeks or months to spend on the development work that really matters instead of wasting valuable time on mundane tasks.



COMPATIBLE

Build-a-bot with tried and tested industry proven parts that you know are going to work together seamlessly.



EASY TO INTEGRATE

Ease the coding process with a powerful setup and monitoring PC utility, sample scripts, APIs, ROS drivers and simulator.



CUSTOMISABLE

Adapt your ORMi to meet the specific needs of your application and to overcome any unexpected challenges.



TECH MADE EASY

Simplify the complex with just one controller, which can be operated from practically anything - PLC, joystick and radio controls, push buttons etc.



PEACE OF MIND

Benefit from our free technical advisory service where help is always on hand to keep your project on track and in budget.

ORMi applications

ORMi is commonly used for industry 4.0 initiatives and lean transformation. For example, a tugger for the high-volume repetitive movement of goods or a reach truck for lifting or lowering heavy loads in confined spaces.

ORMi can also be used in specialist applications such as a danger detection tool in zones with no existing guiding infrastructure or as a moving platform for laser scanning. ORMi can be developed into any number of permutations and can handle both light-duty and heavy-duty tasks.

- AIV (Autonomous Intelligent Vehicle)
- AGV (Automated Guided Vehicle)
- AMR (Autonomous Mobile Robot)
- UGV (Unmanned Ground Vehicle)
- Unmanned combat robot
- Automated pallet truck
- Automated reach truck
- Automated stacker



Logistics & Warehousing



Automotive



Manufacturing



Agriculture



TV & film production



Construction



Healthcare



Marine



Laboratories



Airports



The possibilities for **ORMi** are endless!

Patient Transportation and Loading System
by *Ferno*



Helicopter Tug
by *Tiger Tugs*



Beach Cleaner Bot
by *Dronyx*



Bomb Squad Robot
by *Proytec*



Robotic Virus Cleaner
by *Bluebotics*



Automated Guided Vehicle
by *Mirage*



ORMi consists of parts that have been used to develop all kinds of mobile robots including those pictured above.

What does include?

	 ORMi KIT	 ORMi WIRED	 ORMi GO	 ORMi BESPOKE
Motors x2	✓	✓	✓	✓
Drive wheels x2 (Plus castor wheels x2)	✓	✓	✓	✓
Gearbox x2	✓	✓	✓	✓
Motor controller	✓	✓	✓	✓
Software (PC utilities, sample scripts, Linux/Windows API's & ROS drivers)	✓	✓	✓	✓
Simulation tools	✓	✓	✓	✓
Braking system	✓	✓	✓	✓
Wires, cables & crimps	✓	✓	✓	✓
Connectors & switches	✓	✓	✓	✓
Fuses, fuse holders & interface module	✓	✓	✓	✓
Thermal protection circuit	✓	✓	✓	✓
Dynamic shunt regulator	✓	✓	✓	✓
Charging system & 1x base station	✓	✓	✓	✓
Battery management system (BMS)	✓	✓	✓	✓
Batteries 48V, 60Ah	✓	✓	✓	✓
Stainless steel baseplate (parts wired and installed)	X	✓	✓	✓
Adaptable chassis frame (assembled)	X	X	✓	✓
Sensors	X	X	Optional	✓
Operating system & interface	X	X	Optional	✓
AI learning algorithm	X	X	Optional	✓
Sensor system installation (on ORMi)	X	X	Optional	✓
Sensor system installation & calibration (to site)	X	X	X	✓
Guidance system fitted to site (if applicable)	X	X	X	✓
Onsite installation & programming	X	X	X	✓
Risk assesment, site safety & CE marking	X	X	X	✓
Comprehensive training program	X	X	X	✓
Service & maintenance plan	X	X	X	✓
Technical support	✓	✓	✓	✓



Robopads Charging System

Precision, high current charging contact system with magnets to control the connection and disconnection action automatically, while using no additional power from the mobile systems' batteries. It offers more compact charging configurations than any other charge system.



Brushless DC Motor Controller

Powerful feature-rich dual channel controller with multiple connectivity options, scripting support and multiple integrated safety features. The two motor channels can be operated either independently or together to move and steer ORMi.



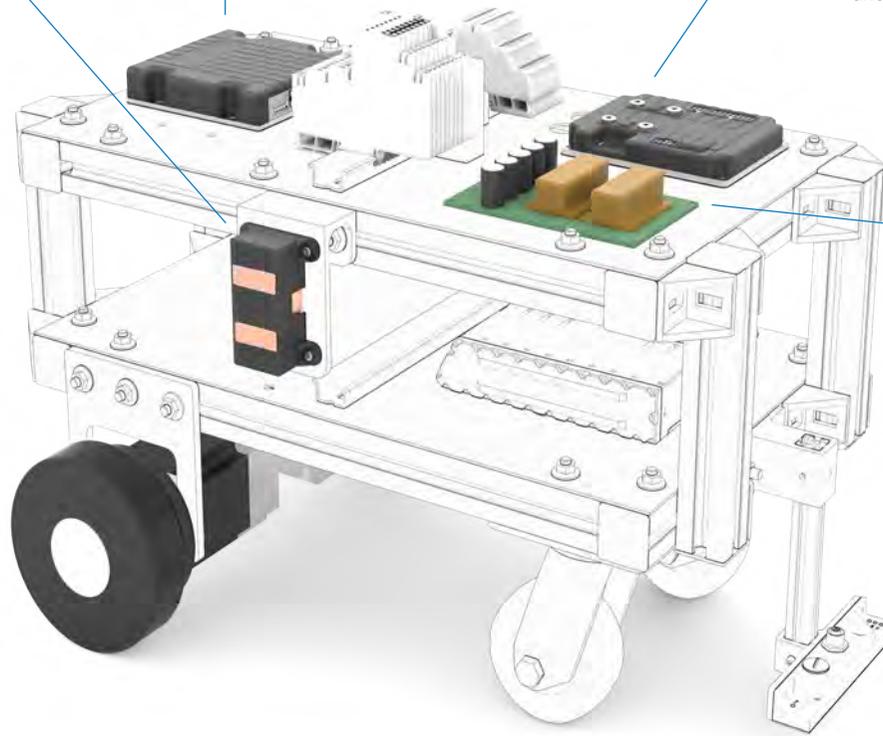
Battery Management System

Battery management and protection system configurable for all lithium battery types up to 75V/100A. Precision sensors monitor the voltage of every cell and keep track of the current flowing in and out of the pack, load and charge.



Motor/Gearbox/Wheels

Mobile robot drive system comprising two brushless frame motors, gearbox and wheel assembly with brake. The drive system works seamlessly with the DC controller.



Dynamic Shunt Regulator

Protection subsystem for dissipating regenerative energy when braking or reducing electric motor speed, instantly applying a two-level resistive load during over voltage conditions to absorb up to 5kw excess energy and bring voltages back down to safe levels.

All components are supplied with the appropriate wiring and fusing for an easy build process.

What else will ORMi need?

Additional items that you might need to complete your project will vary according to the performance criteria of the intended application. For example, a UVC disinfection unit will require a lamp whereas a bomb defusing unmanned ground vehicle may require haptic feedback functionality. Some of the more basic factors to consider when designing your mobile robot include the following.

Power

Battery type, size and capacity will differ according to your ORMi's appetite for power and whether it will be fully charged overnight or micro-charged in between jobs. Consideration should also be given to the docking station network if there is a need to have more than one.

Navigation

If your ORMi's development path is the AGV route, it might need tape for magnetic navigation or reflectors for laser guided navigation. If it is the AMR route, then cameras, laser scanners and software all might be on the to-buy list. All variations will require sensors.

Chassis

Our engineers can design and build a custom chassis if required. Moving small parts from one workstation to the next may only need a lightweight construction yet handling volatile substances in a hostile environment will need something more robust.

Safety

Whatever your mobile robot form (AGV, AMR, AIV, UGV etc), it will need an appropriate system that meets the relevant standards and complies with any applicable regulatory requirements. This may comprise both active safety elements e.g. pressure sensors, and passive devices e.g. audible alarms.

Software

The ORMi family comes with software comprising PC utilities, simulators, tools, APIs and drivers that allows you to customise functionality using basic language scripts. For more complex applications, or if you want a more user-friendly interface, you may consider alternative software architecture.

Special Parts

The ORMi family has been designed such that it provides a standard development platform, not a finished mobile robot. This gives the designer the freedom and flexibility to design and build a specialised AMR, AGV or AIV, which may require non-standard parts for example, bespoke robotic arm tooling.

Our online retail partner, Active Robots (Retail) Ltd, stocks a wide range of additional parts. Go to [active-robots.com](https://www.active-robots.com) to learn more.



Alternative Power

With so many different types of battery on the market, choosing the right battery size, version, high-current capability, capacity etc. to suit your specific application is an important element of the design. This includes consideration of the charging solution from a safety angle.



Additional Safety & Security

Safety systems e.g. e-stops, light curtains, LIDAR etc. is no doubt a primary design consideration. However, all aspects of safety need to be considered, not just sensors, speed and stopping ability. This includes cybersecurity protection against hacking and illicit reprogramming.



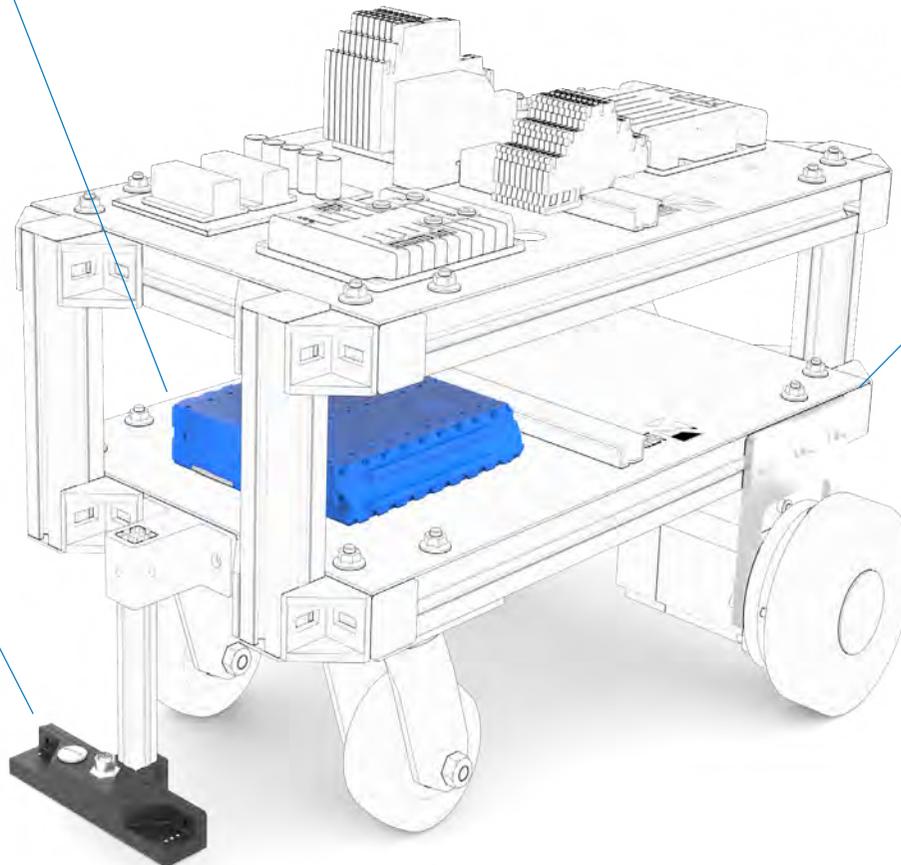
Navigation

The navigation strategy should be mapped out early on in the development stage. From GPS to real-time vision systems, navigation technology is becoming increasingly smarter to allow more intelligent information processing and greater autonomy. Sensor technology can include infrared, sonar, inertial, laser range finders and the position sensing device (PSD).



Chassis & Stabilisers

ORMi GO comes with a chassis made from tough, durable materials, which can be adapted or upgraded in accordance with designed loads and speeds. Nonetheless, additional consideration must be given for specialist or extreme uses such as nuclear decommissioning or submersibles.



ORMi performance data comparison

Max. payload* (kg)	Voltage (V)	Wheel diameter (OD mm)	Motor (RPM)	Max. torque for 20,000hrs operation (Nm)	Theoretical max. speed** (m/s)	Example loaded max. speed*** (m/s)	Example acceleration max. speed*** (m/s ²)
500	24	156.4	1500	70	12.3	1.2	2
500	48	156.4	3000	70	24.6	2.4	2
1000	24	156.4	750	70	6.1	1.2	1.5
1000	48	156.4	1500	70	13.3	2.4	1.5
2000	48	202.4	2000	70	21.2	4.2	0.5

* Based on 0.25 m/s² acceleration.

** Unloaded, max. torque and max. voltage.

*** Max. payload at max. torque for 20,000hrs operation.

Generate a product code based on your requirements

1. Choose one specification from each column:

2. Create your code, for example:

ORMi-GO-1000-24

3. Call [01761 234 376](tel:01761234376)

or email hello@ormirobot.com

to place your order.

Need more help?

Whatever you might need, we are here to help you. Our retail partner, Active Robots (Retail) Ltd, holds stock of a vast range of approved robot parts that will enable you to develop or modify your ORMi to be more intelligent, agile or adaptable. With super short lead times they can get you what you need quickly and reliably.

We can design and produce bespoke end of arm tooling/effectors to meet your exacting needs. Furthermore, we offer a free technical advisory service as standard. From specifying safety systems to troubleshooting errors, get in touch at any stage of your build journey. Email us at helpme@ormirobot.com

Need a bespoke solution?

We can scope, design, develop and implement a complete mobile robot system aligned with your needs, objectives, and capability. We can make it flexible, scalable, interoperable and Industry 4.0 ready so that it continues to serve you well into the future.

We have co-created successful robotics, automation and systems integration strategies with our customers that have helped them minimise their vulnerabilities, build resilient businesses and given them a competitive edge. We can help you transform, perform and thrive too. Get in touch! Email us at hello@ormirobot.com



The hard work done!

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