

What can a mobile robot do? Here is answer from myAGV, an autonomous navigation smart vehicle

The smallest 6-DOF mobile robot in the world, myAGV is coming!! After the upgrading, myAGV can combine with myCobot, myPalletizer, and mechArm.

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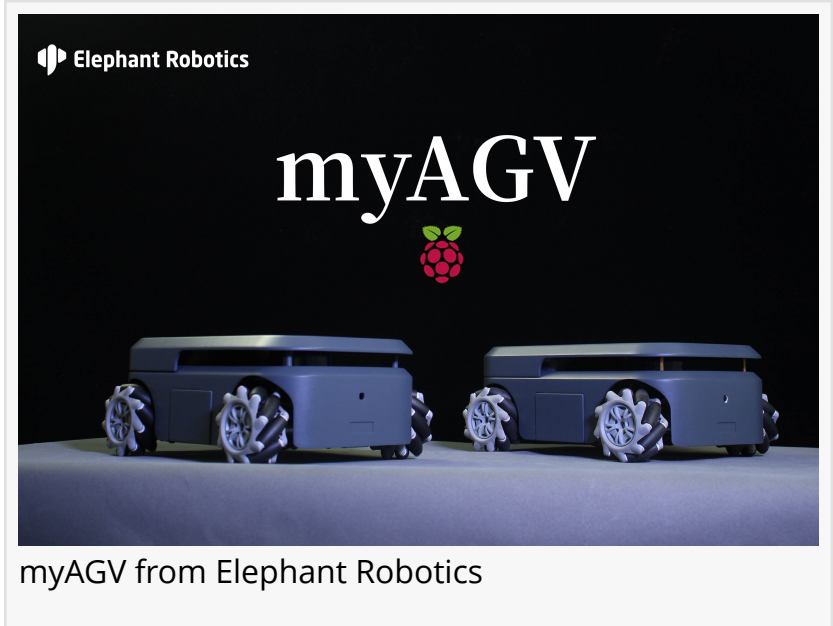
Since 2016, [Elephant Robotics](#) has launched many collaborative robotic arm products such as [myCobot](#), myPalletizer, mechArm, and the new dual-arm robot, myBuddy. However, a stationary robotic arm can not meet the needs in more applications. It will be extremely helpful that the robot has

the ability to pick up an object and then carry it across a distance. So Elephant Robotics released the [myAGV](#) in 2021, and the product sold very well. In August, Elephant Robotics upgraded the myAGV with better performance and more functions to meet more applications.

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myAGV is the highest cost-performance mobile robotic platform for individual developers. The wireless control brings more conveniences, especially combining with robotic arms.”

Joey Song, CEO of Elephant Robotics



myAGV from Elephant Robotics

1. Hardware updates & Secondary development support
The full wrap design with a metal frame makes the myAGV more compact and tough. The built-in Raspberry Pi and the split structure encourage users to disassemble it and develop a DIY robot by themselves. Maneuvering within tight spaces is necessary, so the traditional wheels that can only provide linear force are not suitable. Therefore, myAGV has been installed the competition-level Mecanum wheels support the all-direction moving so that the myAGV can move more flexibly for a massive range of motion.

On the head of the myAGV, a built-in camera makes the robot support object, image recognition, and position. On the back, myAGV provides multiple

interfaces, including IO, HDMI, USB 2.0, and network interface so that users can develop more achievements on myAGV. For example, through the IO interface, users can connect with sensors to be mobile detectors and learn the functions of sensors and multi-sensor fusion technology. Powered by Raspberry Pi, users can program myAGV directly by connecting the keyboard and mouse to USB interfaces and display to HDMI. Also, two magazines are on both sides of the myAGV, which expands the battery number to increase the working time.

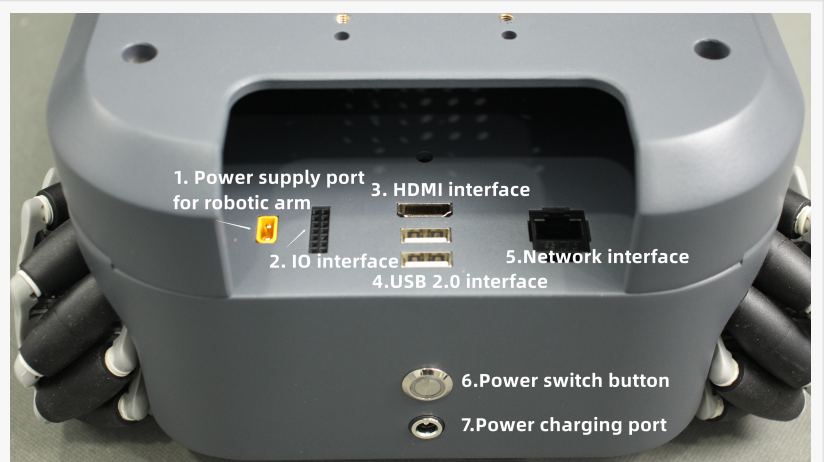
The payload capacity of myAGV is 2kg, so it can be not only a robot platform to work with robotic arms but also a cargo robot to carry and transport various boxes. Also, myAGV is equipped with a hall effect sensor to encode the wheels' rotation performance, which makes myAGV's speed reach 0.9 meters per second.

2. Built-in algorithms & ROS support

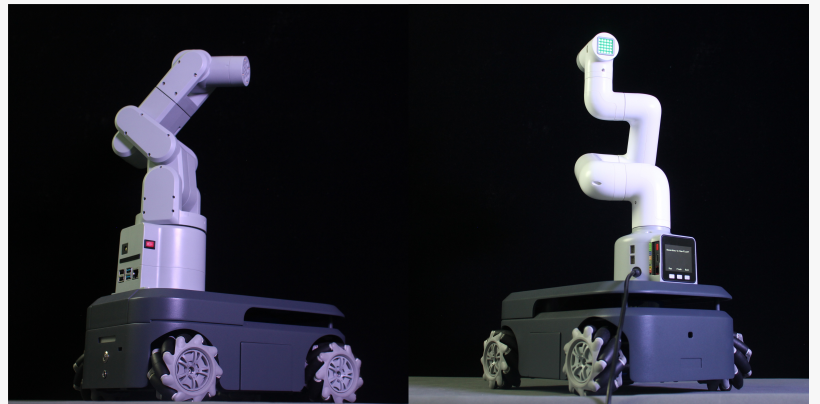
The built-in Gmapping and Cartographer algorithms allow myAGV to be capable of real-time scanning and mapping, automatic path planning, and collision avoidance. Because being able to know where myAGV is positioned both relative to itself and the environment is important when trying to navigate autonomously, so myAGV has been set to a Lidar module to emit and receive laser light beams. The data is then fed into a SLAM algorithm to determine where the robot is within its environment. Moreover, myAGV supports the simulation development environment ROS. Users can also learn many artificial intelligence applications and research with the camera in the ROS environment, such as robot vision, cross-robot communication, visual pursuit, SLAM navigation, and basic locomotion.

3. Multiple manipulating ways

The Raspberry Pi system of myAGV can connect with the robotic arms in both M5 Stack and Pi versions and also supports wireless communication. Therefore, myAGV can combine and work with myCobot, myPalletizer, and mechArm. The robotic arm of Elephant Robotics can work with multiple accessories, including gripper, suction pump, and some sensors, to intelligently interact with the world. Also, the problem of the limited working scope of the robotic arm is solved.



Interfaces of myAGV



Compound robot with robotic arms

In addition, to control by computer, myAGV also supports wireless gamepad control such as PS controller. It is more convenient for users when they control the robot or achieve multi-robot collaboration in real-time, such as controlling myAGV and robotic arm by one controller in the meantime.

For individual developers who are new to robotics and want to create quick prototypes for personal or industrial use, myAGV is a preferred choice as a robot platform with multiple functions at an affordable price. It can bring a lot of conveniences as a cargo robot in daily life and can be a good assistant in robotic exploration, such as learning about structure, electrical principles, and motor control of the mobile robot.

Marketing & Sales team

Elephant Robotics

+8613686825107 ext.

[email us here](#)

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