# BrainOS®

## POWERING AUTONOMOUS ROBOTS
## EMPOWERING THEIR BUILDERS
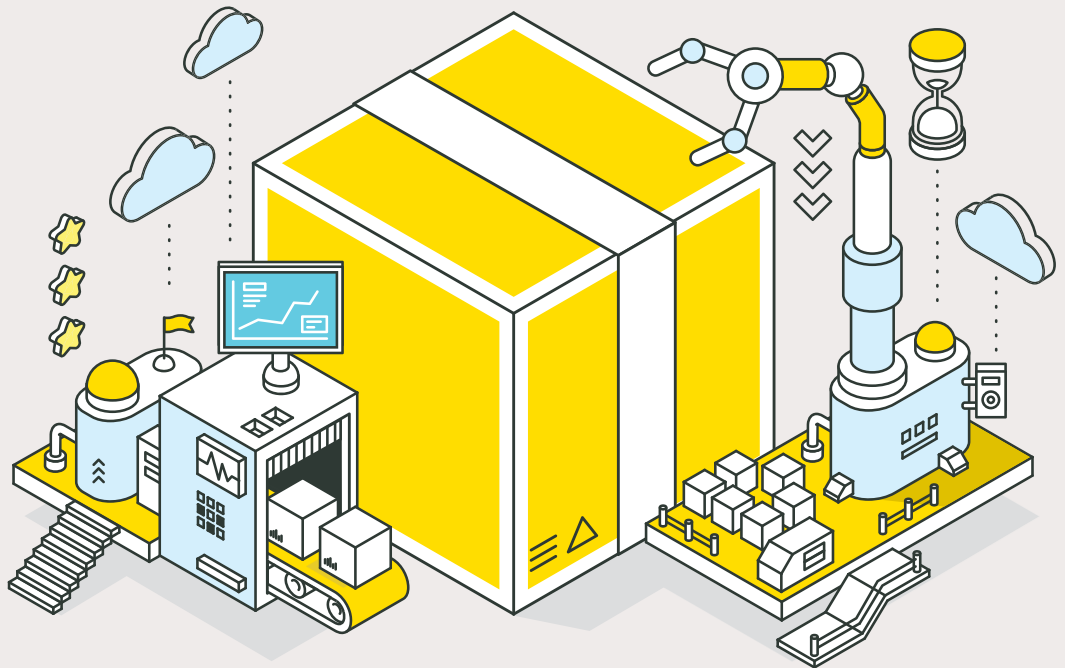
brain corp®

# Building Robots is Hard.

# Building Robots at Scale? Even Harder.

Building a robot from the ground-up is a complex, technical feat. Money, time and countless hours of R&D oftentimes go into creating such technologies. To date, most robots are still built, programmed and calibrated one by one, stifling innovation and the positive impacts enabled by automation.

In order to effectively scale robotic products, there needs to exist trusted, standard, foundational technology. Considering the relatively nascent state of the industry, no such solution has truly existed...
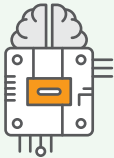
**Until now.**

# The Solution: BrainOS®

BrainOS is a commercially proven, cloud-connected operating system for autonomous robots. It empowers the builders of today's autonomous machines to lead the market by successfully producing, deploying, and supporting robots at scale.

## ROBOTS POWERED BY BrainOS:

**NAVIGATE AUTONOMOUSLY AND AVOID OBSTACLES**

**EASILY DEPLOY WITH EXISTING MACHINES AND STAFF**

**ADAPT TO CHANGING ENVIRONMENTS**
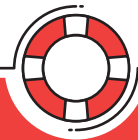
**MANAGE DATA**

**GENERATE REPORTS**

**SEAMLESSLY INTERACT WITH HUMAN USERS AND OTHER ROBOTS**

These foundational capabilities are all enabled by BrainOS, empowering robot builders to focus on product differentiation and greatly streamline a path to profitability.

BrainOS can save companies approximately

**300,000 R&D HOURS
$30 MILLION DEVELOPMENT**

(Equivalent to a 75-person R&D team working for 2 years)

## YOUR ROBOT

**Customized BrainOS-powered robot for industry application**
(Self-driving floor scrubbers, vacuums, delivery robots, shelf-scanning robots, security robots, etc.)

**Lead with cutting edge-technology and drive positive impact to bottom line**

**Sell to end user or distributor**

## BrainOS®
### TECHNOLOGY STACK

The physical machine is just the tip of the iceberg when building a robot. BrainOS provides the critical, comprehensive foundation needed to ensure success.

Don't reinvent the wheel. Fast-track time to market, save on costly R&D, and lead with technology by using the industry's proven solution.

**Fleet and Lifecycle Management Tools**
(Monitoring, Data and usage info tracking, Configuration management, Reporting)

**Deployment and Maintenance**
(Provisioning, Error detection, Activation, Robot to user communications)

**Innovation Updates**
(Lessons learned by one robot can be transferred to the entire fleet)

**Manufacturing Apps**
Calibration, Diagnostic, Support

**Deployment Apps**
Map and Route Creation, Self-exploration

**Autonomy Apps**
Route following, Obstacle avoidance

**Odometry, Localization, Mapping, Perception, Motion Planning**

**BrainOS Security Layer**

**Interfaces with recommended top component providers for IP67 rated water/dust proof sensors, cameras, and batteries**

Brain Corp named
World's #1 Autonomy Solution Provider
for Mobile Robotics by ABI Research

**ABI**research
for visionaries

# The Industry's Leading Solution

In-market since 2015, BrainOS safely and successfully powers autonomous commercial robots across industries and environments.

## TRUSTED

· Technology will power thousands of autonomous robots around the world by the end of 2019

· Network effect of fleet-generated data and real-world edge cases ensures safety, quality, and consistency across all BrainOS-powered machines

· Team comprised of world-leading experts in AI, computer vision, machine learning and robotics

## FLEXIBLE

· Streamlined integration into any wheeled form factor

· Powers machines that work across complex, indoor environments with people and objects

· Provides instant infrastructure, mitigating the need for additional cloud services or environmental retrofits

## COMPREHENSIVE

· Provides full suite of core technical building blocks so producers of autonomous machines can focus on product differentiation and value

· Features best-in-class support throughout product life cycle

· Cloud connectivity facilitates fleet management, reporting, diagnostics, and seamless innovation updates

## USER-FRIENDLY

· Robots powered by BrainOS require straightforward, non-technical setup

· Learning-by-demonstration approach enables end user to easily teach the robot before having it perform in autonomous mode

· Collaborative robot/user experience ensures quick adoption and easy deployment

## Floor Care

BrainOS is currently powering multiple machines within the robotic, commercial floor care space. Current manufacturers and customers include Intelligent Cleaning Equipment (ICE), Minuteman International, Nilfisk, NSS Enterprises, Tennant Company, and Walmart.

> **"** We're excited to work with Brain Corp in supporting our retail operations and providing our associates with a safe and reliable technology. BrainOS is a powerful tool in helping our associates complete repetitive tasks so they can focus on other tasks within role and spend more time serving customers.
>
> **John Crecelius, VP of Central Operations, Walmart**

## Whiz

Whiz is a robotic commercial vacuum cleaner from SoftBank Robotics. The product is currently available in the Japanese market.

## AutoDelivery

This proof-of-concept autonomous tug is designed to work with a wide variety of delivery carts across environments.

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At Brain Corp, we envision a world where the lives of people are made safer, easier, more productive, and more fulfilling with the help of robots. Such robots will be as commonplace as computers and mobile phones are today.

**Dr. Eugene Izhikevich**
**Co-Founder, Chairman & CEO**

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Brain Corp is a San Diego-based AI company creating transformative core technology for the robotics industry. Brain Corp's comprehensive solutions support the builders of today's autonomous machines in successfully producing, deploying, and supporting robots across commercial industries and applications. Brain Corp is funded by the SoftBank Vision Fund and Qualcomm Ventures.