Powering autonomous robots.

Empowering their builders.

Dave Ross, VP Business Development
Brain Corporation
Transforming everyday machines into autonomous solutions
Platform Model
Robotics as a Service

Brain-enabled Robot Deployment

Primary Customers
Users of Autonomous Mobile Robots
Example Possible Customers

AMR Partners
Builders of Autonomous Mobile Robots

BrainOS + Hardware Development
BrainOS Software SaaS Fleet Management

T7
T7AMR
Ride-on battery floor scrubber
Robotic cleaning machine

BS Example Possible Customers

AMR Partners
Builders of Autonomous Mobile Robots

Primary Customers
Users of Autonomous Mobile Robots
Example Possible Customers

AMR Partners
Builders of Autonomous Mobile Robots

Primary Customers
Users of Autonomous Mobile Robots
Example Possible Customers

AMR Partners
Builders of Autonomous Mobile Robots

Primary Customers
Users of Autonomous Mobile Robots
Example Possible Customers
Reference Designs
Sensor Kit Sourcing/Assembly, Tools for Manufacturing/Deployment

Large platform application
Commercial floor scrubber (900lbs)

- LTE module
- 3D ToF
- 2D LIDAR
- 2D vision system
- 3D Time-of-Flight vision system
- Compute platform (x86-based)

User interface control panel

Small platform application
Commercial vacuum (77lbs)

- Wide angle 3D depth and 2D vision system
- LTE communication module
- Compute platform (ARM-based)
- Bumper
- Cliff detection

User interface control panel
## BrainOS Architecture

### BrainOS Cloud Services
- Services, Lifecycle Monitoring, Data APIs + Webhooks
  - Data Reporting
  - Customer Portals
  - OEM Portals
  - 3rd Party Cloud

### Universal Wireless LTE Connectivity

### BrainOS Client Software
- UI
- OEM apps
- 3rd Party apps

### UI & App API Framework
- **Autonomy Apps**
  - Route following
  - Auto-Coverage
  - Obstacle detect / avoid
- **Manufacturing Apps**
  - Calibration tools
  - Diagnostic tools
  - Support tools
- **Deployment Apps**
  - Map and route creation
  - Self exploration
  - Expert demonstration

### BrainOS Primitives
- Odometry
- Localization
- Mapping
- Perception
- Motion Planning

### BrainOS Middleware + ROS Compatibility Layer
- BrainOS Security Layer
- OS (Ubuntu 16.04 + 18.04)

### Hardware Abstraction Layer (Sensor drivers)
- Application-specific sensors & peripherals
- HW (processor, nav sensors)

### Simulation Tools
- Unreal
Brain OS has autonomously travelled more than 10 times around the earth.

Compiling Edge Cases:
Windows, Escalators, Ramps, Children, Pets, Objects, Paths (Cleaning, Scanning, Delivery)
Delivery Navigation
Heavy and Light platforms
Scanning and Cleaning Navigation

Less Robots, More data

Optimizing data collection, vision based AI, and localization:
Mobile IOT While Cleaning
Public Operation Use-Cases
AI Marketplace
Market-Based Approach to Data Analysis
Use-case Machine
Clean, scan store, collect and map data

The same localized store data and vision models can be used to drive many uses-cases

- Feature Maps
- Misplaced Items
- Price Accuracy
- Advertising
- Order Online
- Completeness
- Smartphone AR
- Item Maps
- Out of Stock
- Navigation
- Live Coupons
- Planogram
- Dwell Time
- Bad Apples
- Store Visit
Example: Data Insights

3D maps, indoor “Street View”