

Renesas Ready Ecosystem Partner Solution Ignitarium Vacuum Cleaner Robot



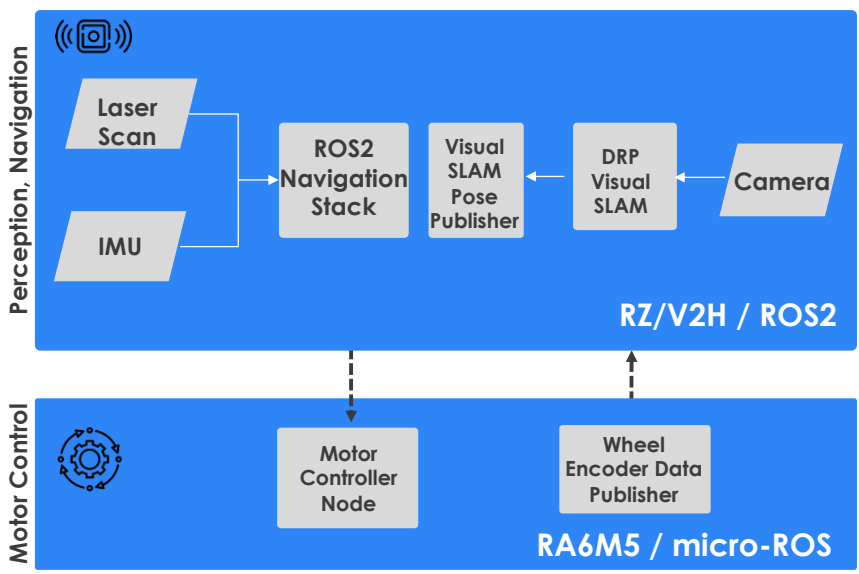
Solution Summary

Vacuum Cleaner Robot is an autonomous mobile robot expressly created to show the practical uses of Renesas components in empowering small-scale robotic applications. This functionality revolves around the incorporation of Renesas [RZ/V2H MPU](#) as its primary processing unit, expertly handling tasks like SLAM (Simultaneous Localization and Mapping), precise localization, AI-driven perception, and intricate path planning. To complement the RZ/V2H, low-level motor control is driven through Renesas [RA6M5 MCU](#), featuring a customized setup complete with an integrated IMU (Inertial Measurement Unit) to substantially enhance localization.

Features/Benefits

- Support DRP based Monocular Visual SLAM and additional input to the ROS2 navigation stack for better localization
- DRP-AI for advanced deep learning neural network-based features (ex: obstacle avoidance)
- Full ROS2 framework to enable sensor integration, localization/ SLAM mapping, path-planning and navigation with 2D Lidar
- Free RTOS + micro-ROS combination enables motor control & micro-ROS publisher for wheel encoder data

Diagrams/Graphics

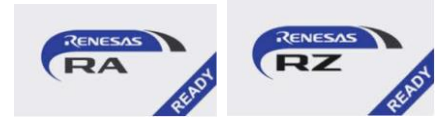


Target Markets and Applications

- Residential
- Hospitality
- Offices
- Healthcare
- Retail

Product Engineering Services

Long-standing Ecosystem Partner for Renesas



2012

Year Established

100+

Projects Delivered

8+

Global Locations

Highlights

- Ignitarium is a boutique product engineering house that combines its expertise in Semiconductor, Embedded software and AI to realize cost-effective system solutions to solve demanding real-world use cases
- With focussed efforts in building capabilities in AI and Robotics, Ignitarium has emerged as a trusted engineering partner for large global enterprises as well as AI start-ups

Services Overview

- Embedded Software
- AI & Computer Vision
- Robotics Software



Focus Areas

- Perception AI
 - Camera, LiDAR, Radar
- SLAM & Path Planning

AI Software Offerings

Data Preparation



MLOPs Best Practices



Model Porting & Optimization

Model Development



System Architecture & Application



www.ignitarium.com

info@ignitarium.com



Ignitarium

#2615, 3rd Floor, 27th Main,
HSR Layout, Bengaluru 560102

India | US | Canada | Japan | Germany