RA Ecosystem Partner Solution
# Qeexo AutoML for Embedded Devices

Solution Summary

Qeexo AutoML is a fully-automated, end-to-end machine learning platform that builds lightweight machine learning solutions (tinyML) running locally on constrained environments at the Edge. It augments the user experience and applicability of products like the RA Family of MCUs, adding intelligence with AI.

Features/Benefits

- Supports Arm® Cortex™- M0 to M4 class MCUs like S5D9 and RA6M3
- Enables a wide range of machine learning methods, including: GBM, XGBoost, Random Forest, Logistic Regression, CNN, RNN, ANN, Local Outlier Factor, and Isolation Forest
- Libraries generated from Qeexo AutoML are optimized for constrained Endpoint device architectures: low latency, low power consumption, small footprint
- Automates tedious and repetitive machine learning processes – saves time/cost to production and eliminates room for error
- Zero coding necessary; machine learning expertise not required

Sample Use Case
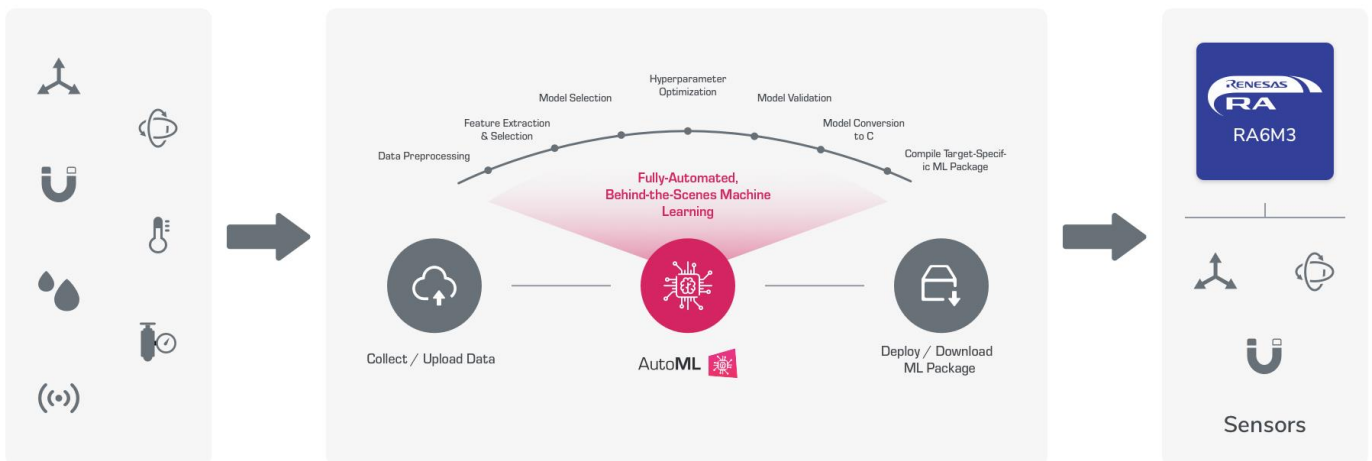
Target Applications

- Wearables
- Industrial
- Mobile
- IoT
- Automotive
- Smart Home/Appliances

2020.05

Actionable Insights from Sensor Data

Sensors are becoming ubiquitous – in your car, home, and mobile devices, for example. Hundreds of billions of sensors are constantly observing and gathering data from their environments, but the data is useless without intelligent analysis. Qeexo's proprietary machine learning algorithms leverage this data to discover knowledge, make predictions, and draw actionable insights.

TinyML: Low-latency, Small Footprint Machine Learning

Qeexo develops machine learning solutions for highly constrained environments. Small, but powerful, Qeexo's machine learning engines are lightweight, delivering high performance with an incredibly small footprint. This allows our models to run locally on devices without having to go to the cloud, making it ideal for ultra-low power MCUs such as the Renesas RA series, and low-latency applications in mobile, IoT, wearables, and automotive.

Benefits of Running Machine Learning at the Edge

- Improves privacy & availability
- Reduces latency, bandwidth & power usage
- Enables smarter, more agile applications

Fully-Automated Machine Learning Platform

- Intuitive one-click machine learning platform for everyone – no coding required.
- Automates labor-intensive tasks, resulting in time and cost savings
- Optimizes lightweight machine learning package for Edge devices, including the Renesas RA Family MCUs

Example Markets & Applications

- Industrial: predictive maintenance, quality inspection, etc.
- IoT/Smart Home: smart appliances, home control, home security, etc.
- Wearables: activity tracking, fall detection, animal tracking, etc.
- Automotive: road surface type detection, novel HMI with central control panel, etc.

Supported Sensors

- Motion Sensors: accelerometer, gyroscope, magnetometer, etc.
- Acoustic Sensors: microphone, ultrasonic, etc.
- Environmental Sensors: temperature, humidity, pressure, air quality, illumination, etc.
- Touchscreens
- Image Sensors
- Biometric Sensors

Product Demos

Please see Qeexo website and YouTube channel for additional demos:

- www.qeexo.com
- www.automl.qeexo.com

Corporate Headquarters: 2483 Old Middlefield Way, Suite 150, Mountain View, CA, 94043 USA
Pittsburgh R&D Office: 111 N. Whitfield Street, FL 3, Pittsburgh, PA 15206, USA