SOLUTION BRIEF:

ULTRA-COMPACT ML AT THE IOT EDGE USING MICROCHIP TECHNOLOGIES®

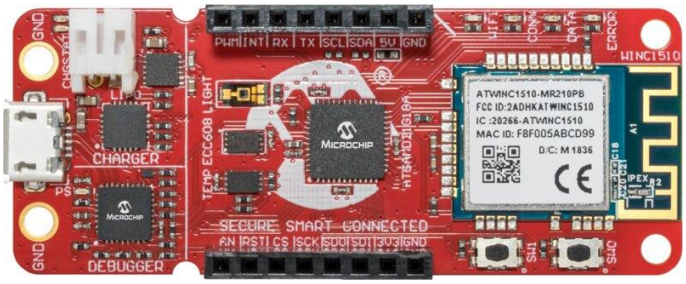
SensiML™
AI Sensor Algorithms
for the Extreme Edge

OVERVIEW

Microchip Technologies® and SensiML have collaborated to produce an easy-to-use ML workflow that allows developers to build some of the smallest, most efficient IoT sensor recognition models. The resulting solution not only serves the needs of 32-bit embedded applications but also 16-bit and 8-bit MCUs.

SensiML supports multi-channel, time-series sensors ranging from sub-Hz environmental to 1 MHz ultrasonic transducers. Models can also incorporate multiple sensor types allowing powerful learned insight right at the IoT endpoint. Meanwhile, code sizes can be as small as 10kB fitting within the constrained resources of real-world MCU applications:

- Gesture and motion recognition and analysis
- Predictive maintenance and process monitoring
- Acoustic event recognition and keyword detection
- Structural health monitoring



The Microchip SAMD21-based ML eval kits have been fully enabled with SensiML's AutoML code generation.

SENSIML / MICROCHIP SOLUTION

Microchip MPLAB® Data Visualizer

- Easily capture data streamed directly from a running target MCU
- Pipe sensor streams directly into SensiML Data Capture Lab

SensiML Analytics Toolkit

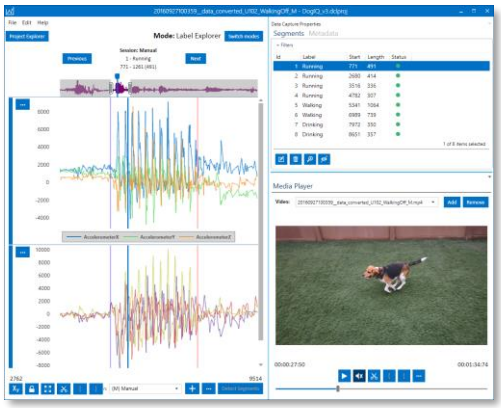
- No AI expertise required to use
- Binary, library, and source code AI algorithm output options
- Data Capture Lab: Easy, automated data collection & labeling
- Analytics Studio: Auto firmware creation from labeled data
- TestApp: AI model validation testing on target hardware

SensiML Knowledge Pack

- Self-contained learning interference model code
- Extremely compact algorithms: Kilobytes not megabytes
- Local ML processing minimizes network overhead
- Supports Microchip SAM and PIC® family microcontrollers

SensiML Datasets and Custom Engineering Support

- Existing datasets and modeling available
- Fast time-to-market from expertise and prior projects
- Knowledgeable embedded IoT data science team
- Optional ready-to-use sensor modules for quick project starts



SensiML Analytics Toolkit features an end-to-end workflow for creating ML recognition code including rich dataset labeling and annotation features not found in other AI tools/frameworks.

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Additional Information
For further information on SensiML software, services, and datasets, please visit https://sensiml.com or contact us via email at info@sensiml.com