**SMART | CONNECTED | SECURE**

Secure IOT Sensor Node
AVR® based IoT Evaluation Board with WiFi Connectivity to the Google Cloud

Summary

The AVR-IOT WG (AC164160) is a compact and inexpensive evaluation and development board to demonstrate easy and secure connection to the Google Cloud. It allows Clients to experience an quick set up to the Google Cloud in less than 30 Seconds.
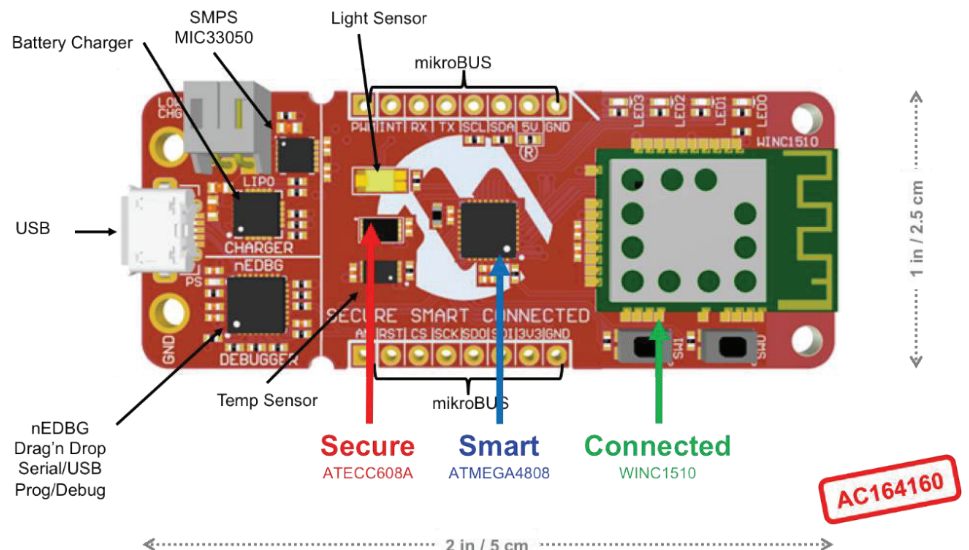
Google Cloud
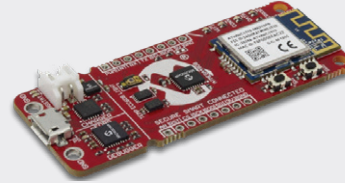
Product Description

The AVR-IOT WG board implements a wireless (WiFi) IoT sensor node using a small and inexpensive AVR microcontroller of the latest generation.

▶ The ATmega4808 provides an easy migration path for existing AVR microcontroller applications by providing 48KB of Flash and 6K of RAM with a rich complement of analog and digital peripherals including Core Independent (Event System) functionality.

▶ The ATECC608A Secure Elements provides secure key generation/storage and offloads all cryptography tasks enabling the highest level of security available to modern IoT applications. The secure element is pre-provisioned for immediate (out of the box) authentication with the Google IoT Core Cloud services.

▶ The WINC1510 Network Controller provides wireless connectivity and offloads all networking tasks from the main processor providing a secure socket connection and server authentication.

▶ The MCP9808 Temperature sensor, a third party lighting sensor, Battery Charger MCP73871, Power Regulator MIC33350, nEDBG Debugger.

Key Applications

▶ Smart Home, Building Automation
  - Intelligent Lighting
  - Access Control
  - Climate Control
  - Energy Saving
▶ Smart Cities
  - Air Quality
  - Traffic Forecasts
  - Traffic Modulation
▶ Health
  - Blood Pressure
  - Heart Rate
  - Oxygen Level

Key Highlights

▶ 30 Seconds set up Google Cloud experience!
▶ Graphical Microchip Microchip Code Configuration (MCC) Support
▶ Direct connection to the Google Cloud, pre-provisioned with free sandbox account.
▶ mikroBUS™ connector provides access to 500+ additional sensors and actuators
▶ USB Mass Storage interface allows easy (drag 'n drop) updates

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Tools and Software (Ecosystem)

▶ IDE (Integrated Development Environment):
  - Atmel Studio 7
  - MPLAB® X IDE

▶ Rapid Prototyping:
  - Atmel START [Example]
  - MPLAB Code Configurator (MCC)
    - Support for MikroElektronika Click™ boards

▶ Landing Page:
  - An important part of the user experience is provided by a dedicated web page [avr-iot.com] Here sensor data can be fetched from the Google Cloud and immediately visualized for real time monitoring.

▶ Google Sandbox account:
  - Each board (secure element) comes pre-associated with a default shared Google Cloud (sandbox) account. This allows immediate successful authentication and data sharing without requiring the creation of a custom user account. At any time, the user will be able to "graduate" by disconnecting the device from the default sandbox and registering it its own private account.

Available Documentation

▶ Resources
  - Promotion Page on our website
  - Pinout and Pocket Card
  - Quick Start Guide
  - Technical Summary
  - User Guide

▶ Videos (Youtube)
  - AVR-IOT WG evaluation board Instruction (3:56)
  - Getting Started with your AVR IoT Development Board (6:26)

Sampling and Pricing

▶ AVR-IOT WG evaluation boards are available today at $29 each.

Complementary Devices

▶ Analog Components:
  - High Efficiency, Low Power DC/DC (e.g. MCP33050) [Link]
  - Battery Charger Management and Controller (e.g. MCP73831)

▶ Expansion sensor boards:
  - MikroElektronika Click™ boards
    - UV Click (I2C) MIKROE-1677
    - IR Thermo Click (I2C) MIKROE-1361
    - 3D Motion (I2C) MIKROE-1877
    - Humidity/Temp (I2C) MIKROE-949
    - Indoor air quality(I2C) MIKROE-2529
    - Heart Rate 7 click (I2C) MIKROE-2998

▶ Services & 3rd Party
  - Microchip Design Partner Program/ Cloud Specialists
  - Microchip Training (e.g. Masters)
  - Global Sales and Distribution
  - Google Cloud

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