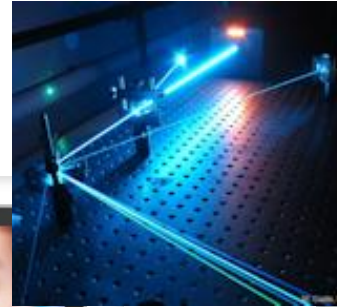
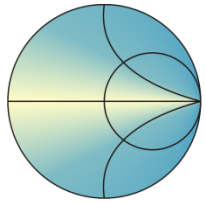


GrayStone Industries

Embedded Wireless Solutions

Capabilities Presentation



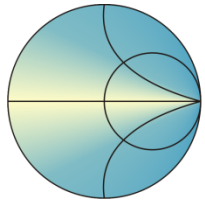


GrayStone Industries

Embedded Wireless Solutions

Presentation Contents

- About GrayStone
- Engineering Design Services
- Embedded Control Systems
- Wireless Solutions
- RF & Microwave
- EnviroNet Wireless Products
- EnviroNet Technology Features
- EnviroNet Implementation Overview
- Projects



GrayStone Industries

Embedded Wireless Solutions

About GrayStone Industries

Company Overview:

GrayStone is an engineering design service (EDS) company offering a broad range of capabilities to our customers that include product development, turn key manufacturing and contract engineering.

GrayStone specializes in customized [embedded monitor/control systems](#), [wireless sensors networks](#), [RF/microwave integrated products and components](#).

Since our inception in 2006, we've created many market ready products for our customers that are used throughout the world.

Our design team is experienced in numerous industries including environmental sciences, aerospace, telecommunications, defense electronics, alternative energy and industrial automation.

We have the talent and experience to take your product from concept through manufacturing while maintaining sensitivity to time to market issues and project costs.

We believe that a successful product involves the unification of innovation, function, expertise and customer relationship.

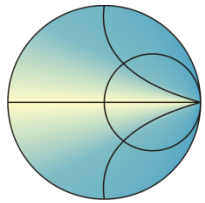
GrayStone is proud to be a Woman Owned, Minority Owned Business Enterprise.

Our Mission:

Our mission is to serve our customers by offering cost-effective, high performance products and design services that meet and exceed the application requirements of our customers.

We actively engage in innovative research and development efforts, working closely with our customers to ensure that our products meet and exceed our customers expectations.





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Engineering Design Services

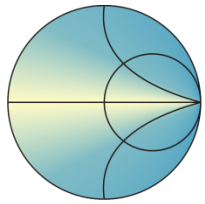
GrayStone also provide our customers with Engineering Design Services (ESD) as a cost effective and competent means to address short comings in engineering resources without having to incur the expense and hassle of hiring additional staff and/or resources.

Our engineering services are especially helpful to those customers that may have a short term project need for additional engineering resources, or specialized engineering capabilities for a limited duration.



Areas of Engineering Capabilities

- Embedded Controllers
- Wireless Sensor Networks
- RF & Microwave



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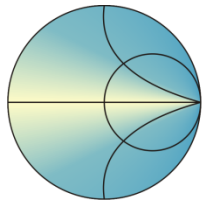
Embedded Control Systems

GrayStone specializes in customer specific embedded control systems that offer powerful yet flexible architectures and comprehensive, easy-to-use management software. Our design expertise and capabilities encompasses industrial, environmental, commercial and defense applications. Our embedded control systems include support for RTOS, communication and graphical interfaces support just to name a few. We also support our customers with software development; providing custom GUI, API and web-based software development for customer defined applications.



Examples of our areas of our engineering expertise are:

- Automatic test equipment (ATE).
- LED aerospace lighting systems.
- RTOS for industrial process monitor & control systems.
- Wireless utility management and maintenance.
- Wireless lightning detection systems.
- Electro-mechanical & LED lighting casino gaming controls.



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Wireless Sensor Network Solutions

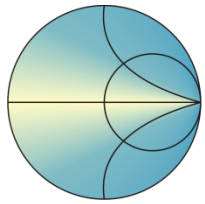
GrayStone wireless sensor networks offer powerful yet flexible architectures and comprehensive, easy-to-use management software. Our design expertise and market areas include industrial, environmental, defense, medical and sports applications.

Our EnviroNet 802.15.4, 802.11 (WiFi) and sub-GHz products are easy to integrate into any existing or new customer application and will provide a cost effective wireless solution to a variety of sensor monitoring and system control applications requiring rugged dependability, low power consumption, a small environmental footprint and WiFi access to the internet.



Examples of our areas of wireless engineering expertise are:

- Agricultural & Environmental monitoring networks.
- Utility management networks.
- Medical monitoring systems.
- Sports training systems.
- Lightning detection systems.



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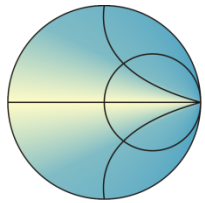
RF & Microwave

RF and Microwave is a core technology for GrayStone. Our engineering experience in this area extends over 30 years and includes electronic design of defense, aerospace, telecommunications products, wireless sensor and WiFi networks. We possess the latest in RF test equipment and engineering design software. We are experienced in working with all common industry substrates and fabrication technologies including soft-board and thin-film. We are also competent in microwave housing designs require to mitigate moding and other undesirable parasitic effects.

Examples of our areas of our engineering expertise are:

- Frequency monitor & control products.
- Amplifiers & frequency generation.
- Integrated multi-functional products.
- Passive components; splitters, couplers, switches, mixers, etc.
- Lightning protection products.
- RF & EMI Filters.



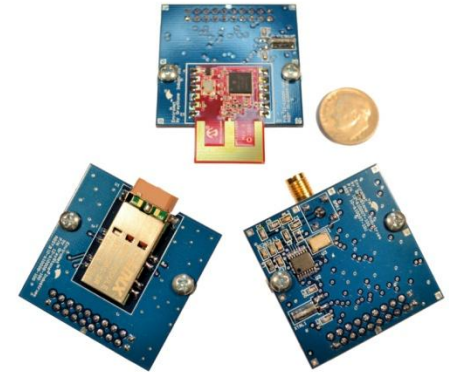


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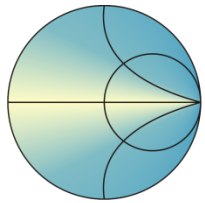
EnviroNet Wireless Products

Given that GrayStone's core engineering competencies lie with RF and embedded control systems, it was a natural step for us to develop our own product line of wireless sensor networking products that incorporate our embedded control systems. Our efforts in this development have resulted in producing a comprehensive line of cost effective, wireless sensor networking modules that easily integrate and work together at a system level to produce a variety of system configurations which all network together.



Examples of our EnviroNet module capabilities are:

- IEEE802.15.4 compliant coordinator and end point nodes.
- WiFi.
- Multi-channel isolated ADC.
- 4-20mA transmitters and receivers.
- 24V digital I/O.
- GPS.



GrayStone Industries

Embedded Wireless Solutions

EnviroNet Technology Features

WiFi Capability:

EnviroNet™ wireless networks are WiFi capable. Allowing the customer to access the wireless network for information and configuration control via the internet in a secure environment.

Energy management & wireless technology:

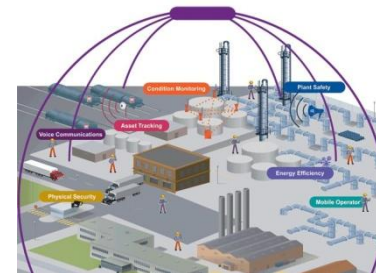
Patent pending wireless and energy management techniques ensure that **EnviroNet™** products will provide reliable 24/7 operation of equipment and processes.

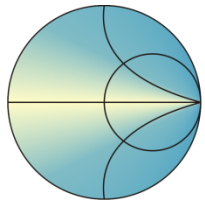
Embedded controller technology & software support:

EnviroNet™ intelligent embedded HW/FW technologies and advance Configuration and Monitor software provides the customer with great flexibility in configuring **EnviroNet™** products to meet the most demanding monitor and control and network requirements while ensuring user-friendly integration and network security.

Energy harvesting:

EnviroNet™ patent pending energy harvesting technology collects energy from the local environment to power **EnviroNet™** products; providing years reliable maintenance free operation.





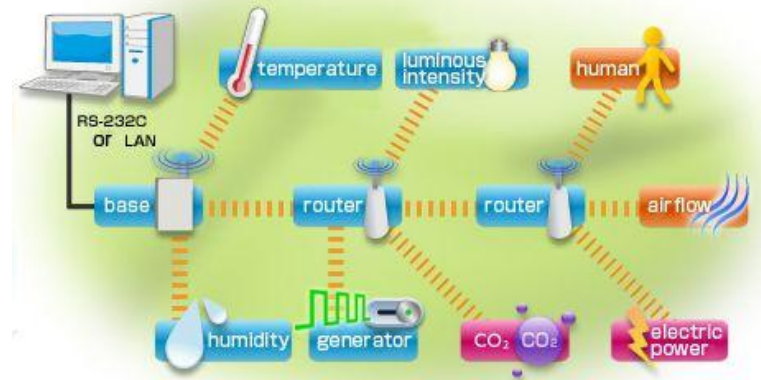
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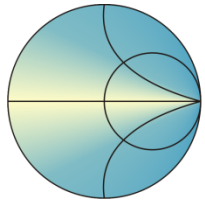
Embedded Wireless Solutions

EnviroNet Implementation Overview

In most cases, an **EnviroNet™** network will consist of a mesh network of 802.15.4 end devices that are configured to monitor and/or control a device such as a thermal couple or switch. These end devices will report to a coordinator which is WiFi capable thus facilitating access to the network via the internet. This configuration of IEEE805.15.4 end devices (and repeaters) reporting to a WiFi capable coordinator facilitates the ability to extend the network for many miles over rough terrain and harsh environments yet still be able to monitor and configure any end device within the network from an office environment, via the internet.

An **EnviroNet™** wireless network will provide equipment operations and service personnel with immediate wireless access to critical, cost saving information concerning operational processes and equipment performance; warning the customer well in advance of costly troublesome situations and thus preventing the expense of costly equipment repairs and down time.





GrayStone Industries

Embedded Wireless Solutions

Engineering Resources

- **Engineering Capabilities:**

- Embedded monitor & control systems
- Web based WiFi monitor & control networks
- IEEE 802.15.4 (ZigBEE) monitor & control networks
- RF circuit and sub-system design
- RF circuit modeling
- Analog/digital circuit modeling
- Lightning protection circuits & systems

- **Software Design Tools:**

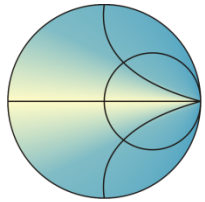
- Altium Designer
- SolidWorks 3D CAD
- Sonnet EM Analysis
- BobCAM
- VS2010
- Web Development Software
- Microchip Development Software
- CCS Development Software

- **Proto-typing Tools:**

- CNC Mill and Lathe
- Rapid PCB
- Microchip Development Tools

- **Equipment:**

- RF Network Analyzers
- RF Spectrum Analyzers
- Surge Test Equipment
- Typical Lab Bench Equipment (Scopes, DVMs, etc.)



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Embedded Wireless Solutions

Customers & Projects

- **Transtector Corporation:**

- Sub-GHz wireless lightning detection system used to monitor natural gas lines.
- AISG MODEM ATE.
- Web accessible WiFi water metering system
- HV Lightning Test Equipment

- **Verizon Wireless:**

- Sub-GHz wireless lightning detection
- Tower top accelerometer system.

- **Sulphco Inc:**

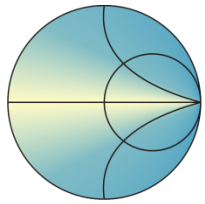
- Custom embedded control system for ultra-sonic petroleum refinement.

- **Times Microwave:**

- Lightning protection systems
- HV GDT Test Equipment

- **Advances Refining Concepts LLC:**

- Wireless industrial monitor and control system for petroleum refinement.



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Embedded Wireless Solutions

Customers & Projects

- **Solar Lightning Inc.:**
 - Solar power LED ballasts incorporating embedded controllers.
- **Harris Corporation:**
 - Airborne lightning protection systems.
 - Mobile radio ESD protection devices.
- **HAWLtech Inc:**
 - Fluorescent lightning ballasts incorporating embedded controllers.
- **Ski Forward LLC:**
 - Wireless snow skiing assistant incorporating an embedded control system.
 - ATE test system.
- **Tripp Plastics:**
 - Gaming machine motor control.
 - Slot machine LED lighting.