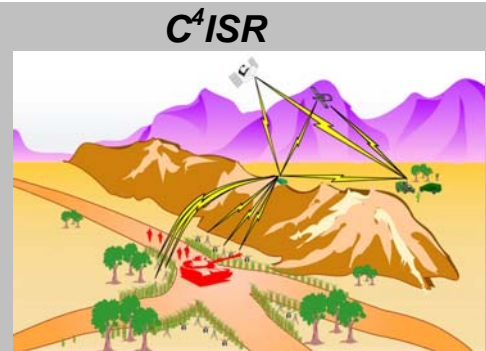

Multifunctional Intelligence Remote Sensor System (MIRSS)

Wireless Sensor and Telemetry Solutions



Manportable, Scalable, Deep Mission, Day/Night UGS System

Surveillance, Observation and Reconnaissance

Unattended Ground Sensors (UGS) systems currently used by U.S. military forces are aging, single purpose systems without reachback communications capabilities, and are stand-alone or stovepipe in design. While these systems have served their uniquely intended missions well, they are expensive, not redeployable, and not easily configured for new or different missions. Traditionally, these sensor systems have not been integrated into any Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C⁴ISR) architectures and do not readily support new data dissemination requirements.

Taking a systems approach, Custom Manufacturing & Engineering, Inc. (CME) has developed and demonstrated an architecture that moves traditional UGS beyond its current limitations. CME's Multifunctional Intelligence Remote Sensor System (MIRSS), through the adoption of standard interfaces and protocols, has brought about the integration of legacy and emerging communications, power management, and sensor technologies.

The U.S. Army's Communications-Electronics Command (CECOM) has recognized MIRSS as providing technological advancements toward improved UGS capabilities applicable to both Military and Homeland Security applications. CME has worked closely with UGS proponent organizations to define mission needs and operational requirements. These organizations

include the U.S. Army CECOM and the U.S. Special Operations Command (USSOCOM).

CME participated in CECOM's C⁴ISR On-the-Move Technology Demonstrations at Ft. Dix, N.J., where MIRSS demonstrated its capabilities to pass multiple sensor data types and imagery back to a C2 vehicle. CME also successfully demonstrated the system's force protection capabilities at Ft. Benning, GA., Military Operations at the Urbanized Terrain (MOUT) training facility.

The current phase of this program will provide a fully ruggedized design, Volcano form factor, and advanced processing and system controls to further the integration of a wide array of sensor capabilities including Chemical-Biological-Radiological-Nuclear (CBRN) and advanced electronic sensors.

The MIRSS Requirement

Special Operations Forces require a tactical system to collect intelligence against strategic and tactical targets. They require rugged and reliable multi-mission sensor support that is man-portable, scalable, extensible, and expandable.



The MIRSS Solution

CME's MIRSS addresses the new UGS requirements by encompassing reconnaissance, observation, surveillance, situational awareness, and force protection.

The MIRSS solution provides:

- Day/night Imaging
- Still digital imaging
- Video
- Acoustic
- MAG/SEIS/PIR
- MET
- NBC
- Advanced map-centric C2 and display
- JTA compliant
- Advanced integrated power system

Architecture

CME C⁴ISR competencies and development expertise includes:

- Open system architecture sensor integration
- Sensor data fusion
- Data encryption
- Controlled interfaces and protocols



CUSTOM MANUFACTURING & ENGINEERING, INC.

CME developed an over-arching UGS architecture that is easily configurable to:

- Military applications
- Surveillance
- Reconnaissance
- Observation
- Force protection
- Early entry assault
- Homeland Security
- Temporary and fixed site security
- Land and riverine border monitoring

CME has integrated multiple “best of breed” sensors (seismic, acoustic, magnetic, imaging, passive infrared, and meteorological) and developed a hybrid communications protocol providing effective data rates.

The system provides multiple day, low-light, and thermal digital still and video imaging choices. It reduces operator fatigue and data overload through effective multi-sensor image

cueing (image captured only when triggered by one or more sensors), which also significantly reduces false or inadvertent alarms.

CME provides remote system control, monitoring, and programming through the Situational Awareness Intelligence Display System (SAIDS), a map-based configuration, display, and C² system.

Power efficient state modes, processing requirements, and hardware maximize operational durations. Hybrid power systems that integrate fuel cells, batteries, and site power (if available) to enable long duration remote unattended operation or continued operation at fixed sites after loss of primary power.

CME integrated multiple military communications links and commercial communication systems including Line-of-Sight (LOS) and Non-Line-of-Sight (NLOS) data links to maximize reachback capabilities.

Software Features

- Situational Awareness and Intelligence Display System (SAIDS)
- Map Display with SAIDS graphical user interface
- Modular, object oriented software supports a wide range of sensors and imagers with “plug & play” technology.
- Mission-oriented configuration is facilitated with easy to use Wizards
- Near real-time transfer of images via SATCOM
- Software development under SEI/CMM process control.

Hardware Features

- Subsystem/System dynamic power management
- Embedded system development
- Standard interfaces
- Custom/COTS hardware integration



MIRSS: Worldwide, Multi-functional Surveillance, Observation, Reconnaissance, Threat Warning, and Situational Awareness

About CME

- High-value small business
- Fabrication and production assembly
- Research, development, systems integration and rapid prototyping
- Experienced vendor to Government and prime contractors
- Certified SDB, WOSB, 8(a)
- **ISO 9001:2000 Certified**



**Tibbetts Award Winner
for Technological
Innovation**

CME Core Competencies

- Communications-Electronics
- Power-Electronics and Power Management
- Monitoring and Control Systems
- General Instrumentation
- Specialized Ground Support Equipment
- Wireless Sensors and Telemetry



**CUSTOM MANUFACTURING
& ENGINEERING, INC.**

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