



Expeditionary Warfare and Integrated Sensor Systems

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“How industry and academia can work together to conduct collaborative research and implement technological solutions at Muscatatuck.” Timothy F. Collins, Managing Director, Purdue Homeland Security Institute



Introduction

**A Small Business
with *BIG* Ideas**

Experience and Capabilities

- Graphical Mapping Packages
- Command & Control Systems
- Rapid Systems Development, Prototyping, and Deployment
- Sensor Integration
- Wireless Communications
- Embedded Software Solutions
- Software Development
- Mobility Enhancements
- Technology Management
- Anti-Tamper Solutions
- Spiral Development
- Mission Planning Software
- Programs for Ship Surveying
- Software Engineering
- 3D Interactive Graphic Packages
- Streamline Data Repository Management
- Real Time Communication
- Active University Partnerships
- Ship Board Installs
- Field Service Technical Support



Contact Next Wave Systems to find out how we can assist you.

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- Next Wave Systems, LLC
 - A Certified HUBZone Small Business
 - Offices in the
 - Purdue Technology Center, Crown Point
 - Indiana University Research Park, Bloomington
 - Headquarters in Pekin, Indiana
 - Established relationship and experience with NSWC, Crane Division.
 - Six employees with over 80 years of combined NSWC employment.

*An Indiana company with strong
Indiana ties.*



Sensor Driven Video Analytics for Next Generation Surveillance Systems



- Indiana 21st Century Research and Technology Fund Proposal
- Scalable, configurable, sensor-driven system
- Monitor security conditions, identify events, and coordinate response
- Improve performance
- Reduce cost
- Improve reliability



Sensor Driven Video Analytics for Next Generation Surveillance Systems



- Planning
 - Sensor-based detection
 - Resource allocation strategies
 - Integrated visual analytics
- Monitoring and Detection
 - Classify events of interest
 - Display video and sensor data
- Management
 - Accurate situational awareness
 - Integrated information; provide real-time temporal and geospatial data
- Response and Recovery
 - Extend operational picture/situational awareness



Sensor Driven Video Analytics for Next Generation Surveillance Systems



- Project Goals
 - Create high skilled jobs in Indiana
 - Develop marketable sensor suites, software and integration tools for security applications
 - Develop new approaches in surveillance technology
 - Enhance Next Wave Systems' position in the surveillance market
 - Enhance relationship between Next Wave and Purdue University
 - Provide interesting research opportunities for Purdue students
 - Provide research and educational opportunities for MUTC



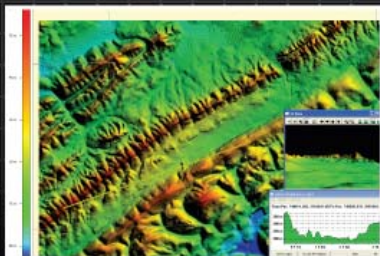
Wireless Communication



Large Area Secure Wireless Technology Designs

Next Wave Systems is experienced in solving large scale secure wireless technology insertions. The company provides solutions using several software design tools and leading edge technologies, including:

- Integrated digital maps and elevation surveys
- ArcGIS and Global Mapper Site studies
- Motorola Mesh Planner Software Suite
- Motorola MotoMesh for mobile platforms, and
- Motorola Canopy for high speed back hauls



Since October 2006, Next Wave Systems has been actively designing a wireless security system with enhanced situational awareness for the Department of Energy. The project utilizes Motorola MESH products to provide a self-healing, self-forming wireless network for security personnel. The solution will maximize bandwidth using the Motorola Canopy line for high speed back hauls to strategic control locations.

Next Wave continues to seek customers requiring wireless solutions for the following target areas:

- Secure Government and Military connectivity
- Mobile solutions for Public Transportation and Recreational complexes
- Metropolitan Areas for public safety including police, fire, ambulance, and
- Wireless Internet Service Providers

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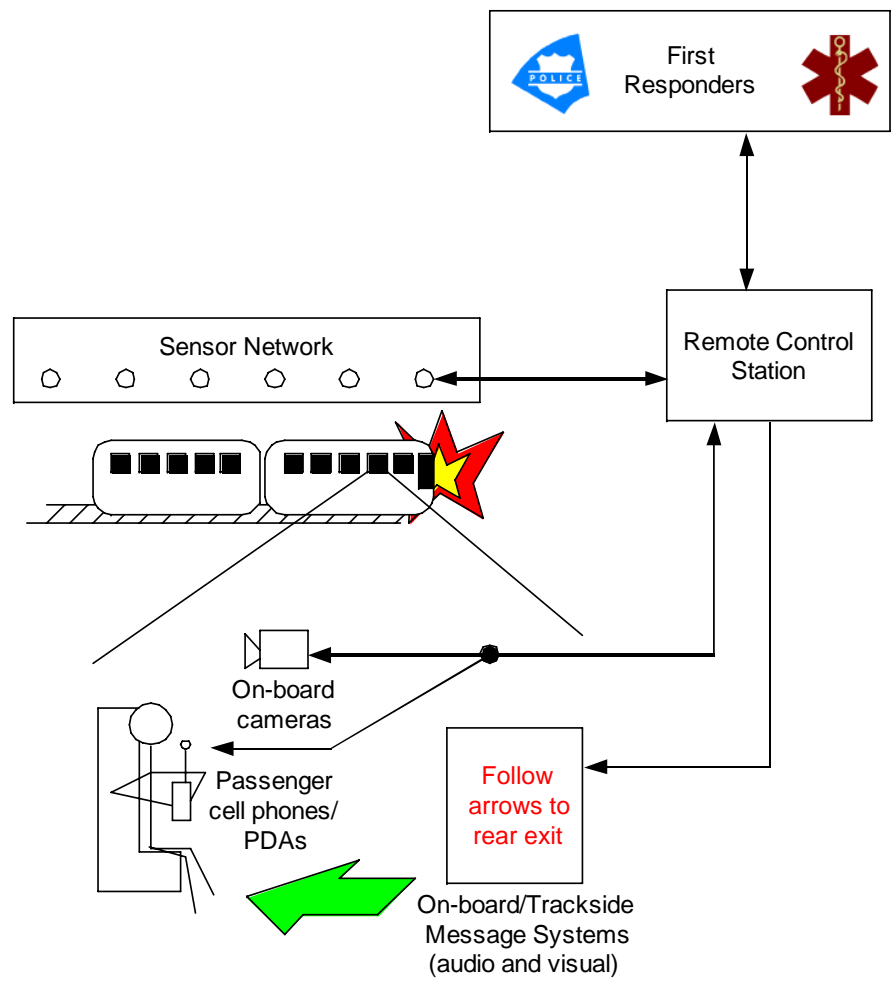
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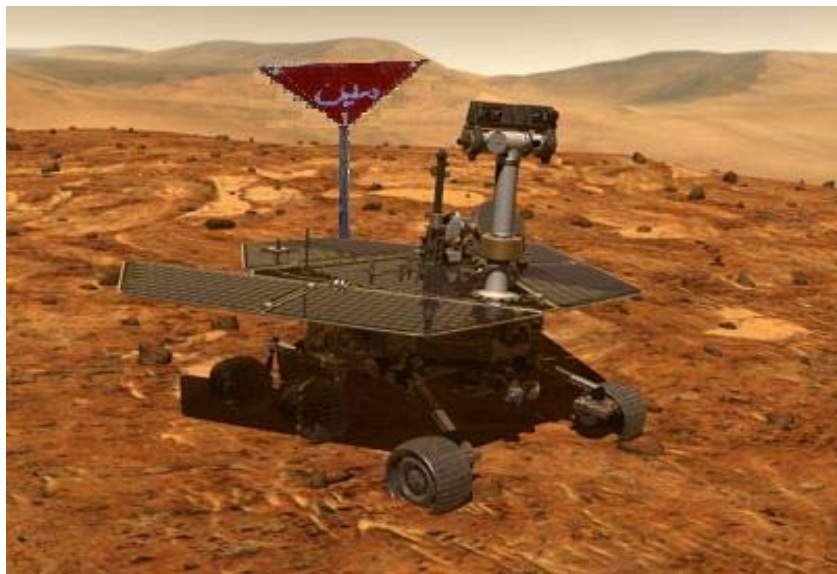
Broadband communication to command center and responders on the go

- Requires site characterization
 - Topology
 - Foliage
 - Buildings
 - Existing frequencies
 - Available infrastructure
- Address wireless security issues
 - Encryption
 - Intrusion Detection
- Increase flexibility of placement of sensors
- Minimize infrastructure changes and cost

Tunnel Guardian



- DHS SBIR
- Subterranean Response and Evacuation
- Sensing Layer
 - Low cost trigger sensors integrated with cameras
- Communication Layers
 - Wireless communication to responders
 - Display communication to responders and victims
- MUTC tunnels as a potential integration validation site



- Army SBIR
 - Leverage Rosetta Phone Technology to Unmanned Vehicles
 - Allows Unmanned Vehicles to find their way when GPS is lost
 - Read foreign road signs to provide guidance to where equipment is located.
 - Potential test and integration of troops at MUTC



Conclusion



- Opportunities exist for small Indiana companies
 - Teaming with Universities
 - Working with existing DoD facilities
 - Working with support of the State of Indiana
 - 21st Century Research and Technology Fund
 - Office of Energy and Defense Development - Indiana Defense Asset Study

Special Thanks to

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- Dr. David Ebert, Professor of Electrical and Computer Engineering
- Mr. Tim Collins, Managing Director, Purdue Homeland Security Institute