

## **Request for Information (RFI)**

### **Introduction**

Battelle Memorial Institute, Pacific Northwest Division in operation of the Pacific Northwest National Laboratory (PNNL) for the U.S. Department of Energy is requesting information, seeking sources, and conducting market research on behalf of the Department of Homeland Security's Science and Technology Directorate (DHS S&T).

The DHS S&T's Wide-Area Surveillance (WAS) project funded the development of a prototype wide area surveillance system based on giga-pixel class, high resolution camera technology for persistent surveillance of large crowded urban environments. This system, known as the Imaging System for Immersive Surveillance (ISIS), was developed by the Massachusetts Institute of Technology Lincoln Laboratory (MIT/LL), with project management support from PNNL. Intellectual property related to the ISIS system includes U.S. patent applications 13/327,416 and 13/438,693 as well as Patent Cooperation Treaty application PCT/US10/60,822. The system capability set was developed from in-depth interactions with potential users with varying roles in critical infrastructure protection and law enforcement.

The overall purpose of this RFI is to identify potential vendors who can effectively transition the state of the art ISIS system from an R&D laboratory prototype to a fully functional product that is built, marketed, sold, and supported by one or more commercial partners. The ISIS system can be used as a standalone video surveillance system, or installed as an integral component of a comprehensive wide area physical security solution. The WAS project is seeking potential vendors who possess the technical expertise and the appropriate resources to build, install, and support ISIS. Potential candidates must recognize and understand the increase in capability this system can provide over most current CCTV systems in use today. The versatility, resolution, and user interface of ISIS can provide a powerful platform that can be used for general surveillance and/or as a decision support system.

Although the longer term goal of this project is to identify potential vendors for future collaboration, responses to this RFI are solely for the purpose of market research to learn who has interest in and is qualified to commercialize the ISIS system. Nothing in this RFI shall be interpreted as a commitment on the part of PNNL or the federal government to enter into a contract with any respondent or to make any procurement.

Each respondent, by submitting a response to this RFI, agrees that any cost incurred in responding to this request, or in support of activities associated with this RFI, shall be the sole responsibility of respondent. DHS, PNNL, MIT/LL shall incur no obligations or liabilities whatsoever, to anyone, for any costs or expenses incurred by the respondent in responding to this RFI.

## ***Section I: Description of ISIS***

The ISIS system is intended to address deficiencies in existing surveillance solutions by providing high resolution imagery throughout an entire scene, coupled with a data management solution and video processing algorithms. Several Federal, State, and local agencies as well as private sector infrastructure operators have expressed a need for the capability to detect suspicious individuals, vehicles, and objects, and monitor them throughout an entire coverage area without sacrificing the wide area view.

Key system capabilities include:

- Continuous capture of a 360 x 182 degree field of view at high resolution
- Simultaneous multiple feeds from both live and forensic data
- Digital pan, tilt, and zoom to reveal greater detail within a selected portion of the scene (high resolution with no moving parts)
- Support for simultaneous scanning and zooming throughout different or overlapping regions of the scene by multiple operators. Multiple feeds do not affect one another and do not disrupt the live view of the coverage area
- User-based tracking of individuals and objects forward and/or backward in time with high resolution
- Designation of exclusion areas and automated alerts for unauthorized activity in the selected area
- Forensic video capabilities, including options to quickly review critical activities or events
- Scalable storage solutions that allow storage and retrieval of full resolution video for up to 30 days
- Smart image compression solution that enables efficient bandwidth usage

The current generation of the ISIS system is comprised of 48 imagers, associated printed circuit boards and processors to create a compact 240 mega-pixel sensor that is about 14 inches in diameter, and weighs about 35 pounds.

Image collection, processing and storage are performed via a custom software package developed by MIT/LL. One or more rack mount servers are required to process the data. The video archive and image storage are scalable, and are currently implemented on two rack mounted disk arrays. Existing storage archives are between 7 and 30 days of full resolution video, although larger solutions are possible.

For each user, a desktop workstation hosts the image viewer software, displaying stitched imagery from the 48 imagers in a seamless, single scene with no gaps in coverage. The viewer provides each operator with their own virtual pan, tilt and zoom capability. Users may process the video with analytics software through this interface as well, including the ability to specify exclusion zones and to automatically follow people throughout the scene with the virtual camera.

This system can be accessed by many users simultaneously without adversely affecting others or performance of the overall system. Security, facilities maintenance and operations may use the system for various purposes.

## ***Section II: Responding to this RFI***

If your company has the potential to manufacture, market, and/or support the system described in Section I, please provide the information listed below. Respondents who best meet the stated requirements may be contacted regarding participation in the future.

### **Identifying Information and Qualifications (Required):**

1. Company Name/Division
2. Business / Administrative point-of-contact name, title, telephone, and email address
3. Technical point-of-contact name, title, telephone, and email address
4. Small business qualification status
5. Country where business is owned and operated
6. Please provide answers to this short survey
  - a. How long has your company been in business?
  - b. Please describe your company's bestselling products and/or services.
  - c. What is your company's primary market sector?
  - d. How many years' experience does your company have producing/marketing/supporting your current offerings?
  - e. Please describe your experience and/or technical expertise with electro-optical systems manufacturing.
  - f. Please describe your experience in board-level manufacturing of electronic components, subsystems, and systems.
  - g. Please describe your experience with Intelligence, Surveillance, and Reconnaissance (ISR) Systems and Technology.
  - h. Please describe your experience with software development and support.
  - i. Please describe your experience with image processing and video analytics.
  - j. Please describe your experience with the optical calibration of camera systems (to include digital calibration of video sources and mechanical calibration of optical devices).
  - k. Please describe your experience with field site support, to include: site selection and placement analysis, installation, training, operational support, troubleshooting, and maintenance (both preventative and field repairs).
  - l. Please describe your company's Quality Process.
7. Based on the responses from the survey above, develop a short white paper of no more than 5 pages elaborating on your answers, and further addressing:
  - a. How the ISIS system fits within your company's existing mission, and future goals.
  - b. Your company's commercialization strategy for the ISIS system, and how you would approach the following areas:

- i. Manufacturing and software development
- ii. Marketing and sales
- iii. Operations, maintenance, and support
- c. In which markets you see the biggest potential for the ISIS system.
- d. Any challenges you anticipate in manufacturing a product like ISIS, and how you will address them.
- e. Your company's anticipated level of interaction with the ISIS development team and the WAS project team throughout the manufacturing, marketing, and support process.

### ***Section III. Submission details and questions***

1. Responses are limited to five (5) pages; font size shall be no less than 12 points (10 points for figures and tables). Attachments (product brochures, publications, company info) may be submitted, and will not be included in the page limit.
2. Please provide any other information you believe to be important and germane to the purposes of this Request for Information.
3. Proprietary information submitted as part of the response to the RFI must be clearly identified and marked as PROPRIETARY.
4. Submissions will be reviewed by the project team (consisting of representatives from DHS S&T, PNNL, and MIT/LL). Responses will be evaluated according to the interest expressed by each company, and the technical ability and resources to build, market, sell, and support the ISIS system.
5. Potential respondents may submit questions regarding this RFI to the contacts listed below. Responses to questions received on or before March 8, 2013 will be posted on FEDBIZOPPS. PNNL may consider questions received after that date, but there is no obligation for PNNL to post any further answers.
6. Please provide contact information for the person responsible for the information in the response, or the person we should contact with questions.

Contact: Jennifer Winston, Senior Contracts Specialist through the following email address: [rfi.isis@pnnl.gov](mailto:rfi.isis@pnnl.gov).

PNNL will only give consideration to submissions in response to this notice that are in the form of Microsoft Word documents attached to emails received no later than March 22, 2013 addressed to Jennifer Winston, Senior Contracts Specialist, at the following email address: [rfi.isis@pnnl.gov](mailto:rfi.isis@pnnl.gov).