# Data Acquisition for a Shooter Detection System

## The Challenge

Raytheon BBN needed to acquire time-synchronized data on a firing range and other environments to test and improve the performance of the Boomerang shooter detection system.

"Using Chameleon turnkey software, the NI PXI hardware platform, and source control based on NI LabVIEW and DAQ software, we can measure more than 32 channels of pressure data from our sensors with expansion capabilities while maintaining time-synchronized data from transient shot events on the firing range."

- Jeff Mazurek, Raytheon BBN

## The Case Study

For more information about the use of Chameleon with the Boomerang system, go to the National Instruments case study,

**Raytheon BBN Tests Cutting-Edge Shooter Detection System**

http://sine.ni.com/cs/app/doc/p/id/cs-15208

## The Solution

Raytheon BBN is a high-technology company that developed the Boomerang shooter detections system. Using an array of seven microphones, Boomerang detects the direction of incoming small-arms fire from the shock wave and muzzle blast, indicating the azimuth, range, and elevation of the shooter in less than one second. A clock face display shows the direction of fire and a recorded voice announces the direction and range. Azimuth, range and elevation are displayed on an LED screen display.

As part of the ongoing improvements to Boomerang, BBN decided to replace an older DAQ system. While considering other solutions, they liked the NI PXI platform and wanted an out-of-the-box solution. They chose the Chameleon DAQ system in order to measure over 32 channels of pressure data.

### *The Chameleon System- 32 Synchronized Channels*

- PXIe-1082 Chassis
- PXIe-8133 Controller
- PXI-4498 DAQ Modules (2)
- PXI-6682H Synchronization Module

### Why Chameleon

- **Flexible, Scalable, Turnkey**
- **Time and Frequency Acquisition**
- **Live Signal Monitoring**
- **Data Display and Processing**
- **Data Export to .mat or CSV**
- **Easily Re-Configured**
- **Multiple Repeated Acquisitions**
- **Pre-Triggered Acquisition**
- **Rugged and Reliable**

State-of-the-Art Shooter Detection System