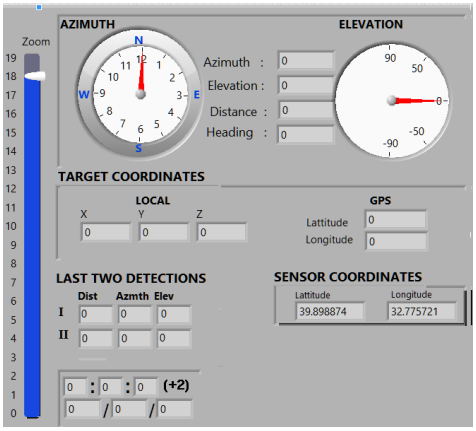
ATARGET

ADF & ABF System

ACOUSTIC DIRECTION FINDING AND BEAMFORMING WITH MICROPHONE ARRAYS: COMPACT INDUSTRY SOLUTION

Build your high tech laboratory starting from an expert level using state-of-the-art industry level platforms. ATARGET has developed both hardware and software solutions for Acoustic Direction Finding (ADF) and Beamforming systems (ABF) using NI cots products. This solution provides a field proven technology with powerful embedded processing resources allowing the implementation of complex engineering solutions. This open source and reconfigurable environment opens up several opportunities for engineering students. ATARGET supplies turn-key laboratory for ADF system which is an investment that would return its benefits for many years without losing its value. Chassis of this industry grade platform allows the plug and play integration of modules for different applications. ATARGET ADF and ABF systems are used in different applications including gunshot detection systems, artillery detection systems, security systems, spatial sound and speech separation, acoustic radar, etc.



USER FRIENDLY GUI and MANUAL

Each experiment is supported with a user friendly GUI allowing complete observation of multichannel signals. GUI is designed using LabVIEW. Supplied codes can be modified to add new features. The projects and the software is supplied with the detailed information. The Laboratory manual is written to cover both theory and application. The engineering background is complemented with the step by step practical applications.

COMPLETE SOFTWARE SOLUTION

ATARGET Acoustic Direction Finding system software is seamlessly integrated with NI hardware and can be operated easily form its GUI. The software is coded in LabVIEW. Each project code is supplied with the laboratory manual. Students can easily modify these codes for custom applications. This software package allows students to localize sounds, identify azimuth and elevation angles of acoustic targets. The time and frequency characteristics of multichannel signals can be observed real-time. Students have the chance to operate with real-world signals and appreciate the power of signal processing provided by the ATARGET Acoustic Direction Finding system software.

NATIONAL INSTRUMENTS LabVIEW

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Features

- Industry proven specs with the largest computation resources
- Best A/D converter and signal accuracy
- Best accuracy in direction finding and beamforming applications
- Open Source Software For Custom Applications
- Seamless integration of NI hardware and software
- Plug and play modules
- Acoustic Direction Finding and Beamforming with Microphone Array
- Kinect Camera Integration (Optional)
- Turn-key acoustics teaching platform
- Real-time Mathscript for MATLAB codes

Laboratory Content with Industry Grade Embedded Platform

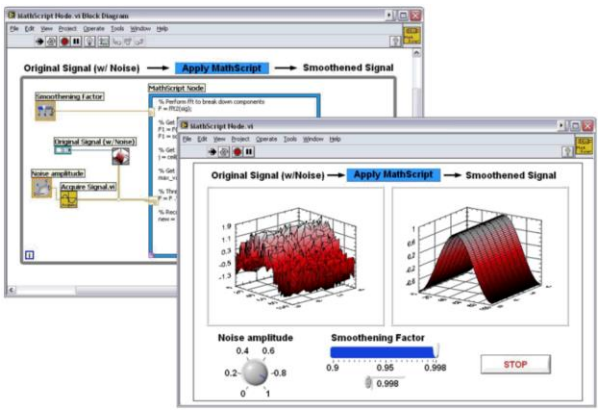
A. Hardware
- Microphones (Professional Mic. Array, Kinect)
- Microphone Stand
- NI Compact RIO

B. Introduction to Acoustics and Microphone Sensors
- Acoustic Waves and Artifacts
- Sensing acoustic signals
- Types of Microphones

C. Simple Programming in embedded system
- Project Generation
- Virtual Instruments
- Running program on PC
- Running program on embedded system

D. Multichannel Signal Reception
- A/D operation
- FPGA programming
- DMA
- Waveform plotting

E. Multichannel Acoustic Processing
- Sound Detection
- FFT and Spectrum Monitoring
- Direction Finding
- Beamforming



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