ATARGET Underwater Training System

ARRAY PROCESSING FOR UNDERWATER SYSTEMS:

ATARGET Underwater Training System is composed of state-of-the-art analog-digital systems including ultrasound transducers, hydrophone arrays, real-time multichannel input-output and processing systems. This flexible and reconfigurable system may be constructed with a single transducer or a more advanced set with a hydrophone array. The setup is supplied as a turn-key solution.

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 Underwater Training 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 Underwater Acoustic Training software.

NATIONAL INSTRUMENTS LabVIEW

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ATARGET

Underwater Training System

Features

- Open Source Software For Custom Applications
- Seamless integration of NI hardware and software
- Professional underwater transducers and hydrophone arrays
- Underwater testbed for complex experiments.
- Turn-key acoustics teaching platform
- Real-time Mathscript for MATLAB codes

Laboratory Content

A. Hardware

- Transducers and hydrophone arrays
- Arbitrary waveform generator
- NI PXI controller, Multichannel Analog I/O Modules
- Underwater Test Tank

B. Introduction to Underwater Acoustics and Transducers

- Underwater Acoustic Waves and Artifacts
- Sensing acoustic signals
- Types of Transducers and hydrophones

C. Simple Programming in NI LabVIEW

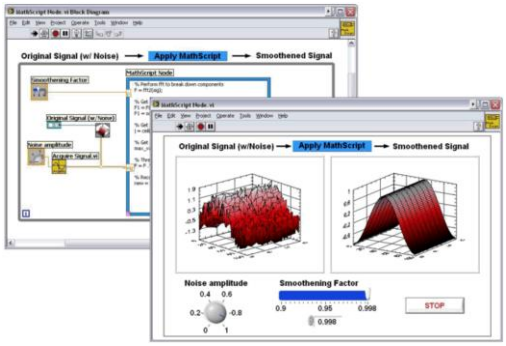
- Project Generation
- Virtual Instruments
- Running program on PC
- Running program on NI PXI System

D. Multichannel Signal Generation and Reception

- Waveform design, D/A, A/D operations
- FPGA programming
- DMA
- Waveform plotting

E. Multichannel Acoustic Processing

- Sound Detection, Feature extraction
- FFT and Spectrum Monitoring
- Sound Localization, Tracking



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