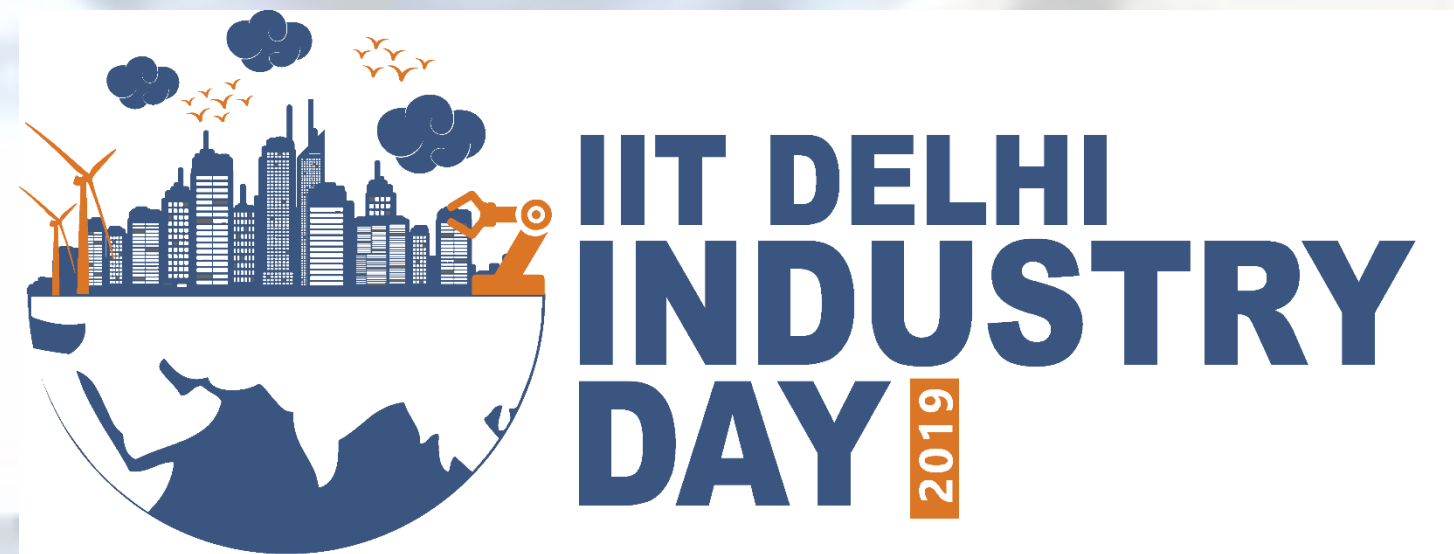




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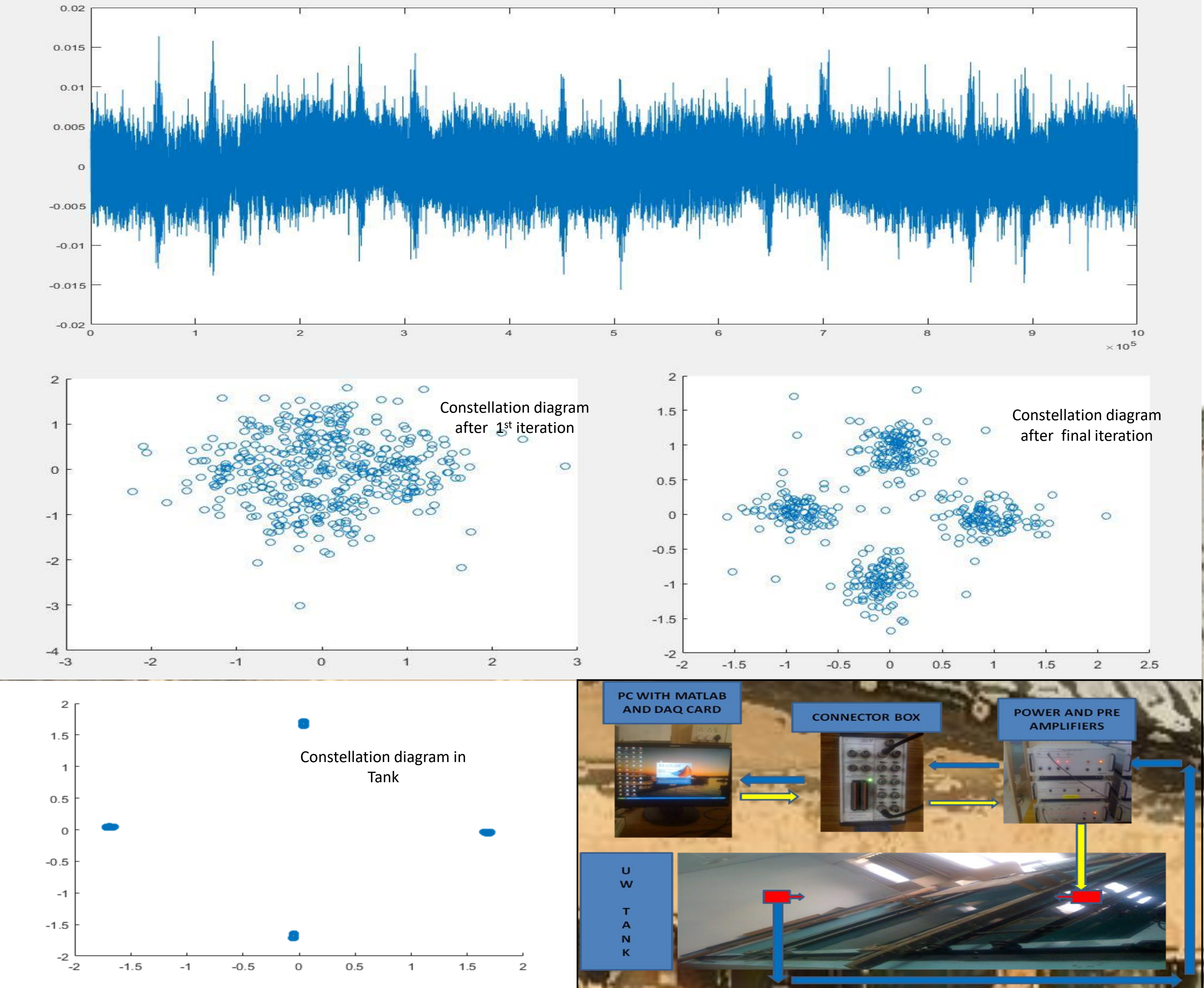
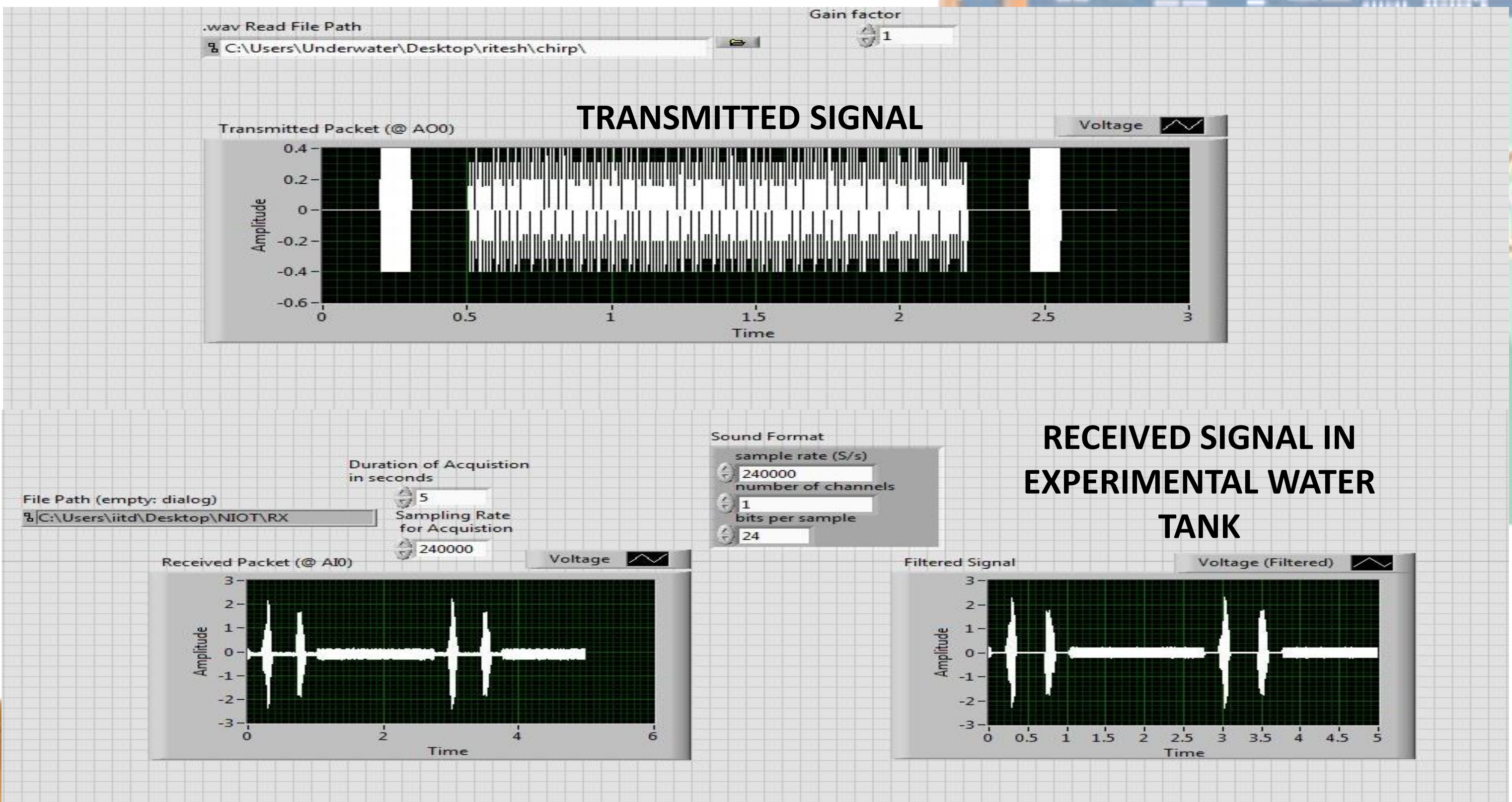
UNDERWATER Communication

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Abstract

The objective of the project is to design an acoustic link for wireless communication between submerged bodies. Underwater communication finds diverse application in the field of River water surveillance, oil extraction and Naval requirements. Under water communications impose wide range of challenges including multipath, Doppler shift, fading and limited Bandwidth resulting in reduced data rates. To alleviate the challenges and optimize the transmission to obtain high data rates, the experiments were undertaken by including Time Reversal Mirror (TRM), Equalizer and few other practical noble techniques for time and frequency synchronization. It involved transmission and reception of data through transducers, mounted on boats in Bay of Bengal near Chennai. During the trials 5 Kbps data rate was achieved successfully with 5 Km separation between the hydrophones.

ACOUSTIC MODEM SPECIFICATION	
Center frequency	11 kHz
Bandwidth	4 kHz
Constellation	8 PSK
Baud rate	1kbps
Prefix	Up chirp
Postfix	Down chirp
Data input	Text, Voice



Industrial Significance

This product is useful for monitoring aquaculture, marine research, oceanography, pollution control, climate recording, prediction of natural disturbances ,marine commercial operations, the offshore oil industry and defense.

Technology Readiness Level:

The work has tested with sea-trial data. Real time implementation of the work is in progress.

