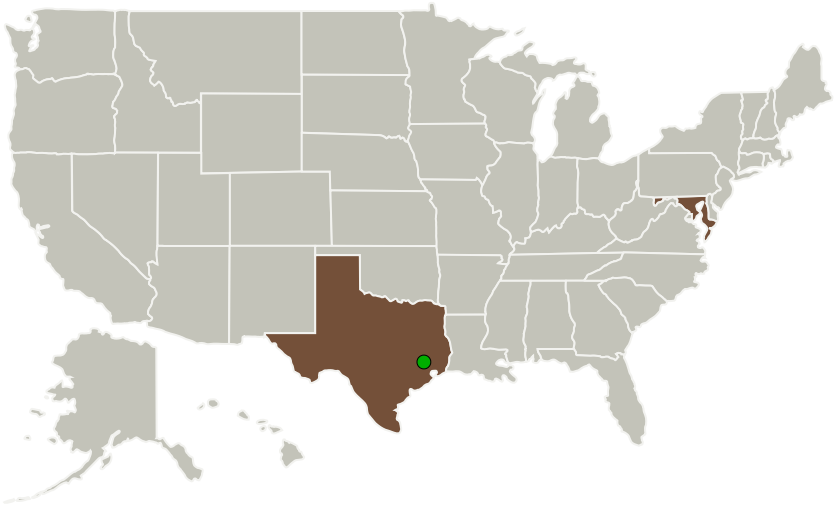
A High Performance Approach to Local Active Noise Reduction in Noisy Cabins, Phase I

Completed Technology Project (2014 - 2014)

Project Introduction

Spacecraft cabin is noisy and uncomfortable. Sometimes, the noise level can exceed 80 dBA. There are 2 challenges to meet the above needs. One is to generate an anti-phase (180 deg out of phase) signal in real-time to reduce the loud cabin noise in a small area. Another one is to minimize the spillover of the anti-phase signal to other places. We propose a novel and high performance approach to suppressing background noise in noisy cabins. Our system utilizes a patent pending adaptive algorithm that can generate anti-phase signals in real-time to suppress background noise. Our system is portable and easy to set up. Most importantly, our system can suppress background noise in a small area and will not spill the anti-noise signal to other places.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Applied Research, LLC	Lead Organization	Industry Minority-Owned Business	Rockville, Maryland
●Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas

A small and quiet area in a noisy spacecraft can help astronauts relax.

A High Performance Approach to Local Active Noise Reduction in Noisy Cabins Project Image

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Primary U.S. Work Locations	
Maryland	Texas

Project Transitions

June 2014: Project Start

December 2014: Closed out

Closeout Documentation:
- Final Summary Chart*(https://techport.nasa.gov/file/137688)*

Images

Project Image
A High Performance Approach to Local Active Noise Reduction in Noisy Cabins Project Image *(https://techport.nasa.gov/image/133556)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Applied Research, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

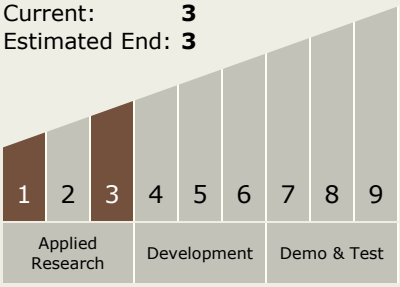
Carlos Torrez

Principal Investigator:

Bulent Ayhan

Technology Maturity (TRL)

Start: **1**
Current: **3**
Estimated End: **3**



Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - └ TX06.1 Environmental Control & Life Support Systems (ECLSS) and Habitation Systems
    - └ TX06.1.4 Habitation Systems

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System