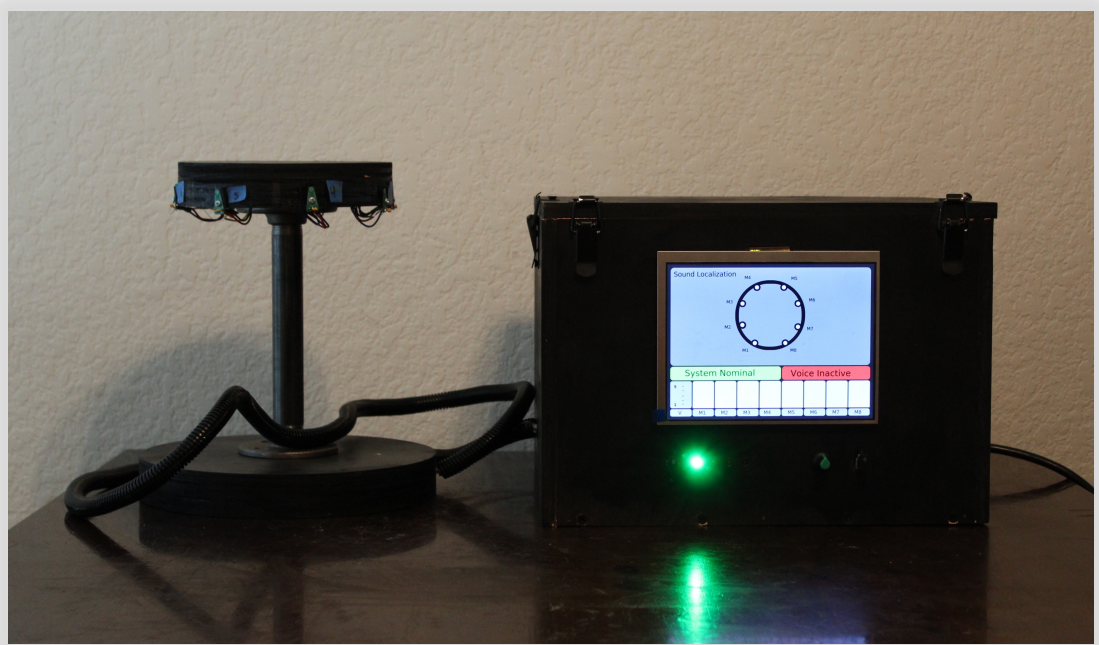
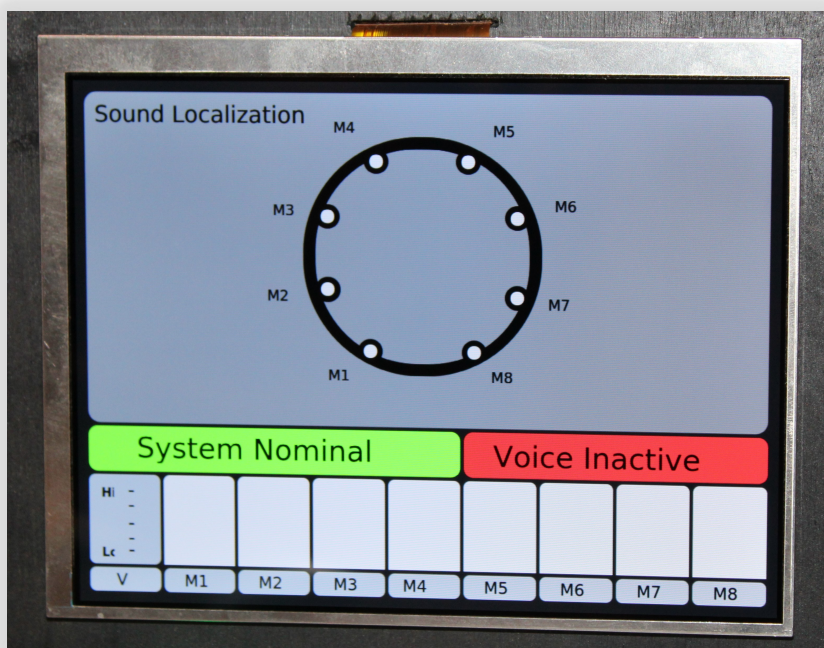
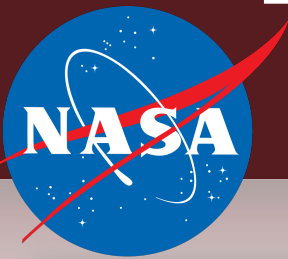


E2.01 Dual-Use Wideband Microphone Array System

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System Block Diagram

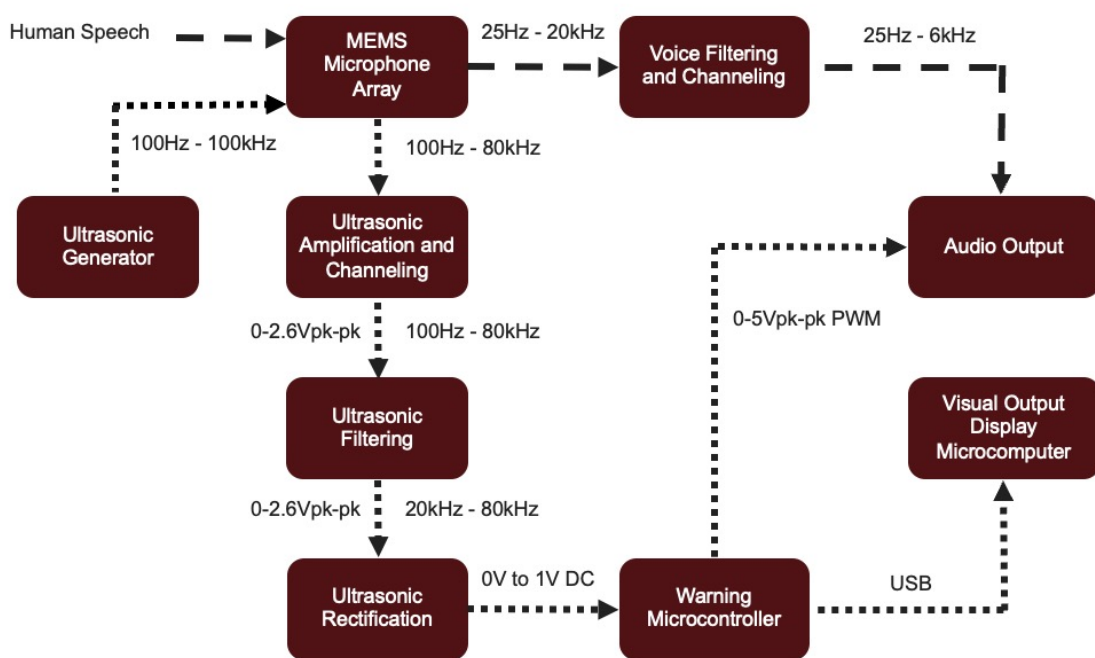


Figure 1: System Level Block Diagram

Design Requirements

- ❖ Detect human speech and pass audio to speaker
- ❖ Detect at least one ultrasonic frequency and sound warning tone
- ❖ Mix the audio of voice and ultrasonic frequencies to the speaker
- ❖ Display status of MEMS microphones
- ❖ Localize sound (stretch)

Features & Tradeoffs

- ❖ Localizes sound in a 1-dimensional plane
- ❖ MEMS array is larger than flight ready system- array could be made smaller due to size of microphones
- ❖ Detects ultrasonic frequencies greater than 20 kHz, frequencies above 45 kHz need to have larger amplitude to be detected by system

