The Vocalizer
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Problem
• Communication in high noise situations sometimes difficult even with noise cancelling technology.
• Examples: gun fire, high winds, explosions

Key Concept
• Take EMG around the mouth and cheeks.
• Translate movement into language.
• Trained for each individual.
• Vocal synthesis to aid communication.

The Circuit
• EMG with Right-Leg Driver.
• Filters for noise and anti-aliasing.

The Whole System

The Algorithm
• Distance and correlation based recognition.
• Neural network also used for recognition.

Voice Synthesis

Results
• Low noise, high signal (mV /V range)
• Up to 85% recognition.
• 6 words synthesized.

Plans for future success
• Wireless Interface between circuit and computer via Blue tooth.
• Better recognition and training.
• Waveform interpolation or spectral smoothing for better transition.

• Implement concatenated TTS synthesizer.
• Savitzky-Golay smoothing filter applied.

*The approximate cost for extra parts to complete this project came to $120