Problem
Need:
- ALS attacks voluntary muscles, leaving patients paralyzed
- The ability to eat, breathe, speak, and move is lost

Design Inputs:
- The device must be fixed to the patient's body.
- > 97% sensitivity, > 8hrs performance in typical lighting
- > 55dB alert audio, > 60ft range
- A distress call generated within 20s

Testing Results
- 25 trials yielded 100% distress detections within 20 seconds
- Detection times are not impacted by 2 hours of wear
- Detection times are not impacted by high and low light conditions
- Audio output is audible to 5 test subjects from up to 60 ft away
- 3 False positive detections within 45 tests

Solution
Since vertical eye movement is retained, EOG will be used to monitor for distress signals

Future Plans
Revisions:
- Improve degrees of communication with an auxiliary input source

Impact:
- Device is fully automated and customized to patient-specific physiology.
- Device is an affordable and reliable means of returning autonomy to patients and caretakers.