AudioGo

Overview
The majority of recording equipment that exists today is expensive and too bulky to provide easy transportation. Many members of the journalism, music, and blogging industries do not have access to this type of equipment. The alternative methods of recording they use produce audio that is not high-quality. There is a need in this market for a small recording device that will produce broadcast-quality audio.

Objectives
The goal of AudioGo is to provide members of the aforementioned communities a means of producing high quality audio files. AudioGo is a miniature, wearable field recorder capable of producing broadcast-quality mp3-encoded audio files. These files will be stored on a microSD card, or virtually in a mobile application sent via Bluetooth. AudioGo will be capable of PCM 48 kHz/16 bit stereo recording and have three user-selectable pickup patterns. The different pickup patterns will allow the user to select the mode depending on the environment they are in and the amount of noise there is.

Approach
- Hardware:
  - Worked with sponsor to select components that deliver required audio sampling
  - Researched example audio microphone arrays and tested each
  - Selected microcontroller based on IDE selection
  - Built prototype based on sponsor’s specifications
  - Modeled components as PCB using National Instruments’ Multisim and UltiBoard
- Software:
  - Selected microcontroller based on ease of choice of IDE—STM Keil IDE
  - Used STM Cube32MX to help define pins on microcontroller and generate header files
  - Performed extensive research in audio engineering coding standards and best practices

Outcomes
- Manufacturing/production times equated to about 300 hours saved for sponsor
- Labor hours saved equates to about $14,000 saved for sponsor

Although a working prototype was not successfully completed, the groundwork our team completed will enable our sponsor to pickup easily where we left off.