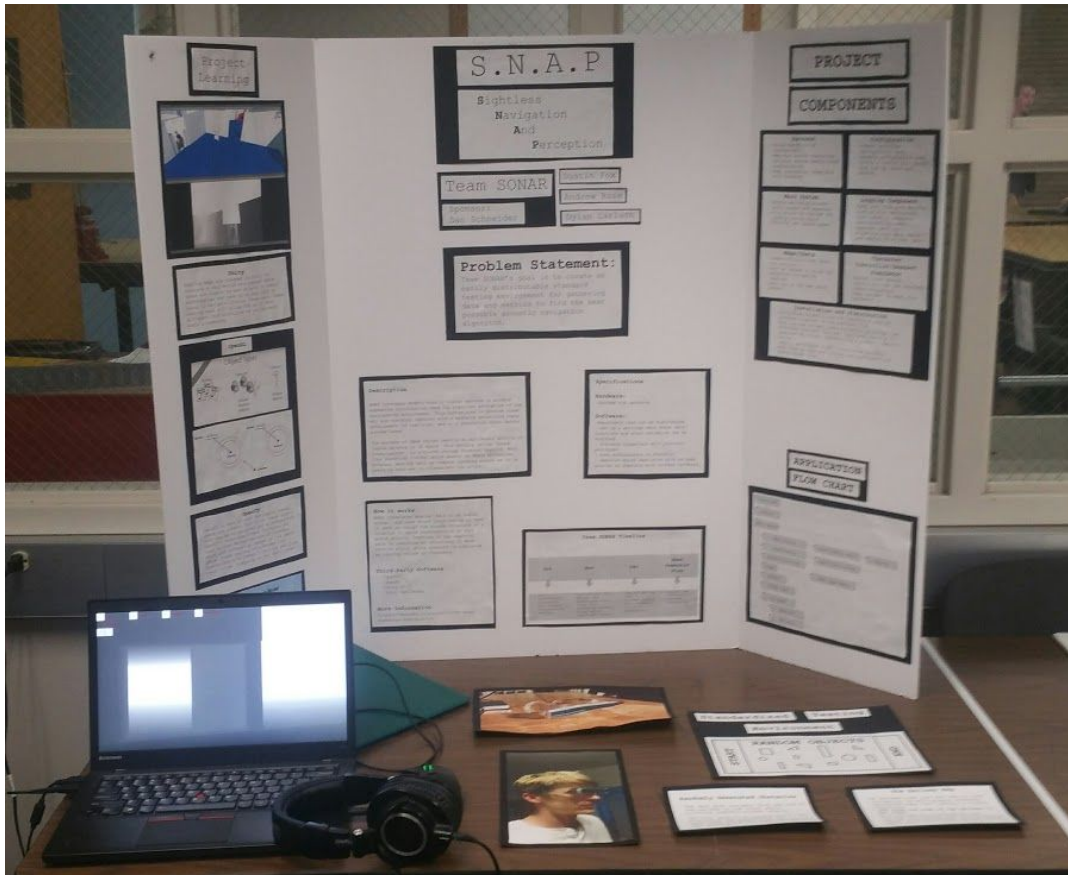# Snapshot Summary

Problem Statement

Team SONAR's goal is to create an easily distributable standard testing environment for gathering data and metrics to find the best possible acoustic navigation algorithm.

Description

For the scope of our capstone we are focusing on creating a fully functional, easily distributable test bed that we can use in order to find the best audio model for conveying navigational information to the user. Once the test bed is completed we will be able to create tests and distribute them around the world to anyone who would like to help, and we will be able to collect real quantitative data about how people navigate best with our system.

Project Components

Backend
- Allow OpenAL to be configurable.
- Maximize source resolution.
- Optimize shared memory block communication.
- Keep everything compatible with hardware.

Configuration
- Create intuitive configuration menu.
- Sandbox configuration mode.
- Create a config file format that can be saved and shared.

Logging Component
- Keep info from each session such as # of collisions, time taken
  to complete, configurations used, map/test used, etc.
- Allow for easy data export and analytics on test data.

Menu System
- Handle switching between unity scenes and submenus.
- File Selection Dialogs for loading config files.
- Tutorial and manual pages.

Character Controller/Headset Simulator
- Robust first person controller that can simulate human
  navigation.
- Keep headset in sync with hardware.

Maps/Tests
- Create multiple test maps for testing.
- Must be random to allow for effective navigation testing.
- Each one is its own unity scene.

Installation and Distribution
- Everything needed to run the simulation must be packaged
  together in one download file.
- Must include an easy installation\build script that minimizes
  the need for user input and installs all required dll files.
  (Essentially a single "Install" button.)
- Ideally would have a GUI installation process.
- Must Find an easy way to host and distribute the Installation
  file.

Flow Chart