Hardware/Sensor Design & Data Collection  
GX 9004.005

Overview

This lecture introduces students to the fundamentals and application of sensing urban sound. Gathering and making use of data from these environments requires knowledge of real-time data acquisition techniques and considerations when capturing and visualizing acoustic data. Time and frequency domain visualization approaches will be introduced, facilitated by a data collection initiative based around a “smart” sound sensing tool, developed as part of the assignment.

Prerequisites

* Knowledge of data I/O using Python libraries
* Visualization and handling of large datasets
* Basic understanding of multithreaded scripting

Assignment

The creation of a semi smart acquisition platform for urban sound data. This platform should log to file the time stamped RMS amplitude of its surrounding sound environment continuously at a chosen time resolution. It should also collect audio files, but only those with sufficient amplitude above the ambient amplitude.