Project Proposal: sound visualizer

Group member:

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Project Overview:

In this 153B project, my goal is to build a sound visualizer using the discovery board. A sound visualizer is a device that takes sound source as the input and output a visual representation of the sound based on its frequency or intensity on a display. The sound visualizer is going to collect its input by using a microphone. The signal will get processed through software, and the outcome will be sent to a LED matrix display which can then visualize the sound signal. Some additional feature I might consider when there is sufficient time is to take sound input signal from my PC via the USB and visualize it with my sound visualizer.

Peripherals:

8 x 8 LED matrix display

microphone

Serial Interface protocols:

SPI: LED display connection

I2C: microphone

Goal:

Short-term:

Build a working prototype of the sound visualizer that collect sound and shows its spectrum.

Mid-term:

Add the feature of taking input signal from my PC and show the spectrum, use the on-board button to select different mode.

Long-term:

Upgrading the display to an 8x8 RGB display that uses WS281x protocol

Website Link:

https://sites.google.com/view/ece153bfinalprojecthaomingchen/home

Block Diagram: