# pLUFs

The Physical LUFS meter will be a project that allows users to have realtime analysis of the LUFs level of the audio being transmitted by their PC. This README has 5 sections:

1. Initial title
2. Overview of Project
3. Sensor Device
4. Display Device
5. Communication Protocol

Here are the slides:

## Slides

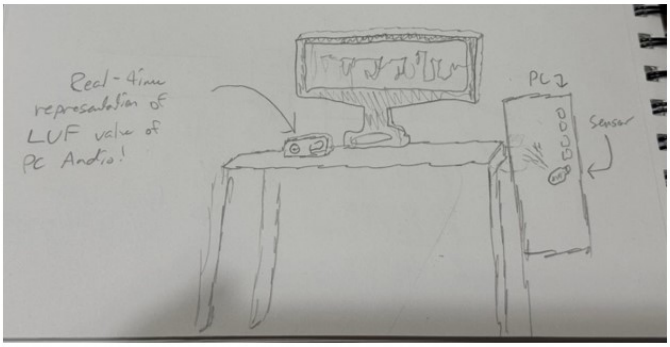
### Initial Title

Here's the title of the project:


Here's an overview of the project:

# General Overview

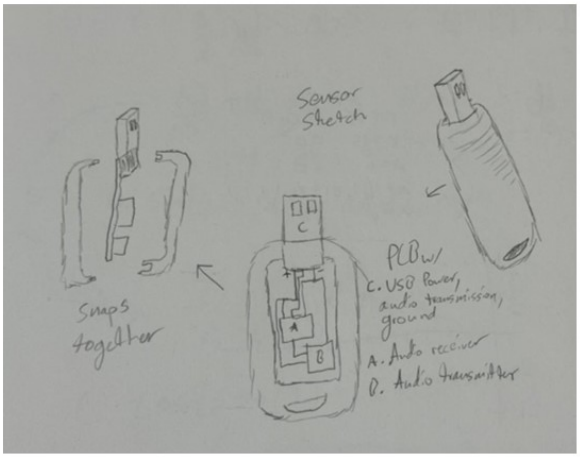
The pLUFs device will have a sensor that plugs into the PC. The sensor will transmit data that shows the LUFs level (perceived loudness) of whatever audio is being played by the PC. The display device will then receive that audio, and analyze it to produce multiple different metrics, which will be represented using a gauge and an LED screen.




Here's the sensor device:

# Sensor Device Overview

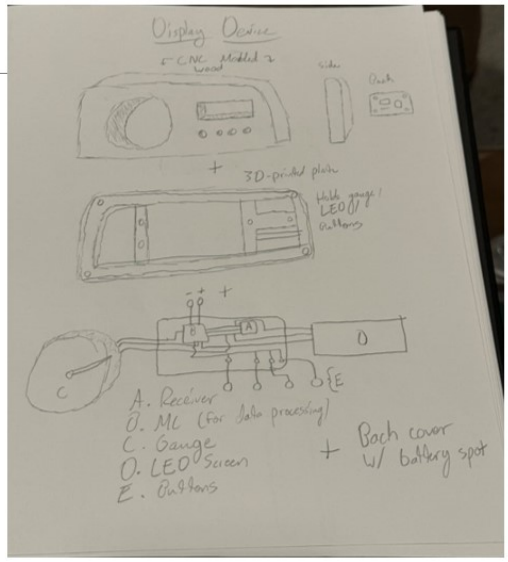
The sensor will consist of a USB power module, which will also transmit the audio output of the PC to the following aspects of the sensor. There will be a receiver that processes the audio transmitted, and an additional transmitter that will then send the audio data over to the display device via Bluetooth. The sensor device will look similar to a thumbdrive, and will have a fairly compact form factor.




Here's the display device:

# Display Device Overview

The display device will have a CNC-molded wood panel on the front, which will house a gauge, LED screen, and some buttons. These will be supported by a 3D printed support that screws into the wood front. A majority of the processing will be done on the display side, as the MC will have the power to process the audio transmitted by the sensor device, and will be able to display whatever it finds. There will also be a back piece that will connect with the support section and will house the batteries that power the display device.




Here's the overall communication protocol of the device:

# Overall Communication Protocol

As previously discussed, the sensor device will transmit the audio data that is being exulted by the PC, which will then be received by the display device. This will be done via the MC an/or the audio receiver. The audio data will then be processed, and analyzed by the MC. Once the LUFs level is determined (multiple settings that the buttons could change the device to), it will then be displayed to both the LED and the gauge. The gauge may continue to show instantaneous, however, and the LED would show an average (or other) type of value that the user selects.