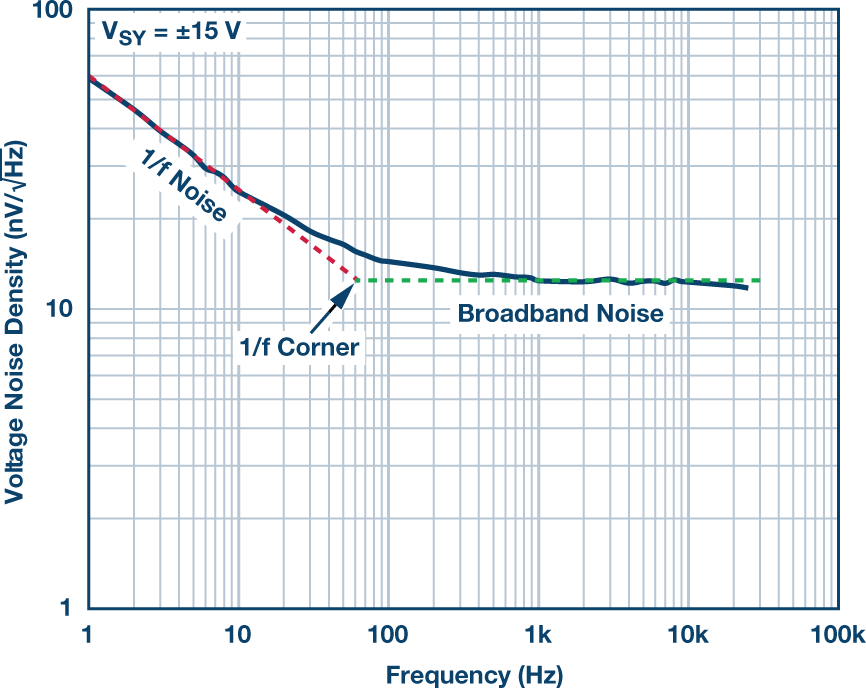
# **Introduction:**

or “Flicker” noise is one of the intrinsic noises – a disturbance that cannot be avoided through improved engineering. The phenomenon’s cause is yet to be determined but it is present in all systems. As indicated by the name, the noise is prevalent in lower frequencies



***Fig x****. noise example in bode plot.* [*https://www.analog.com/en/resources/analog-dialogue/articles/understanding-and-eliminating-1-f-noise.html*](https://www.analog.com/en/resources/analog-dialogue/articles/understanding-and-eliminating-1-f-noise.html)*)*

Due to its low frequency characteristics, flicker noise is more influential in Direct Current (DC) systems. While it may seem small in magnitude, it is important to consider due to most of our systems being built on DC infrastructure. In electronics, flicker noise is especially significant in semiconductors, resistors, and operational amplifiers, affecting the performance of precision analog circuits and sensors.

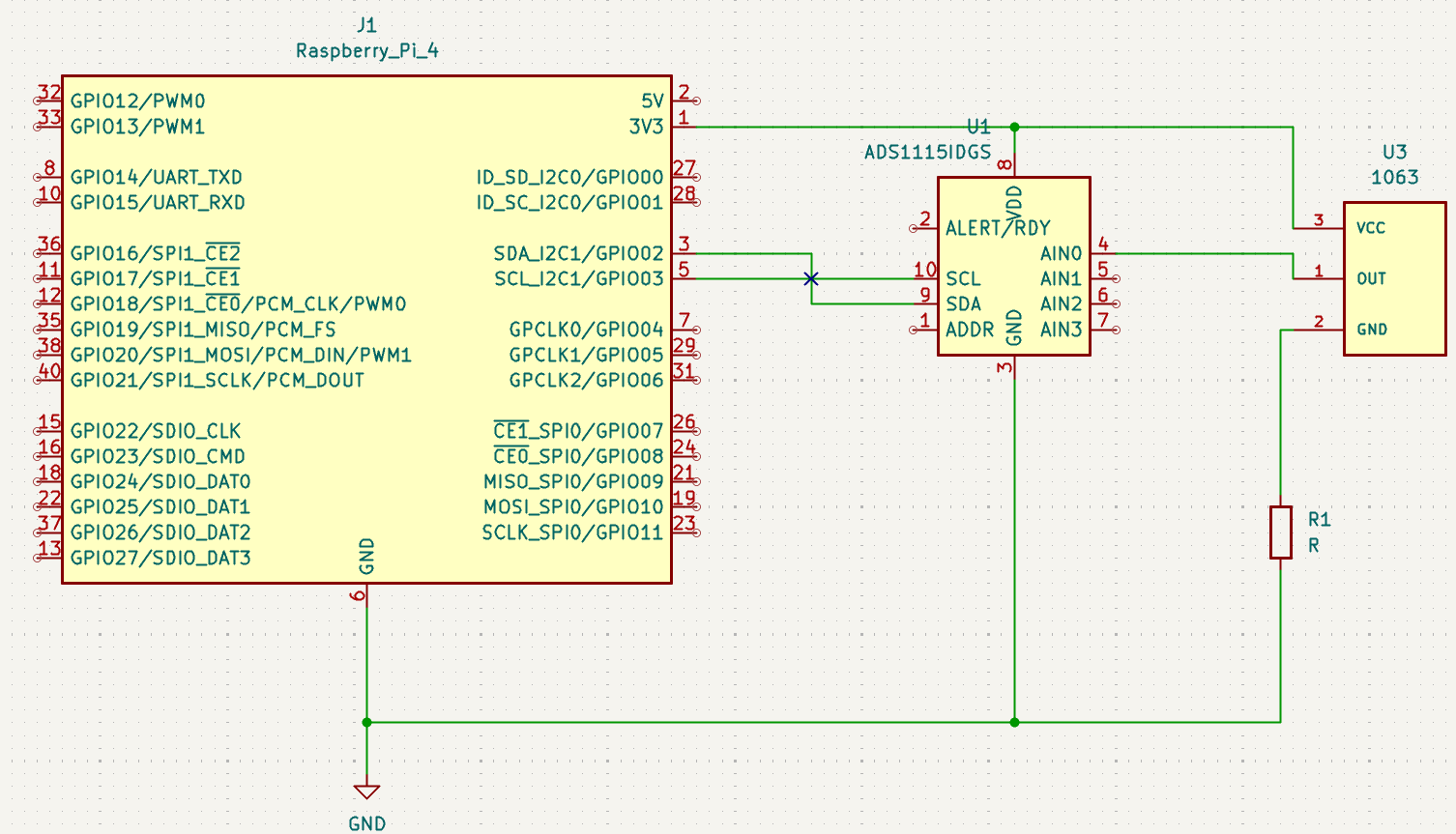
This report aims to showcase the presence of Flicker noise in audio picked up by a microphone sensor module. By analyzing the sensor’s output, the explorations seek to illustrate how flicker noise appears in practical audio measurements and to highlight its significance in real-world sensing applications. Additionally, the report will attempt reduce the flicker noise by conducting the exact same experiment in an enclosed environment (i.e a box)

# **Method:**

**Equipment:**

* Raspberry Pi 4B (RPi 4B)
* RPi 4B wall power source
* MicroSD card (for data collection)
* ADS1115 (Analog to Digital Converter)
* WWZMDiB Microphone
* Resistors (10)
* Breadboard
* Jumper wires
* Closable box

**Wiring Schematic:**



***Fig x****. Wiring schematic for experiment (KiCad)*

**Experimental Setup:**

Reference : <https://www.theengineeringprojects.com/2021/03/what-is-raspberry-pi-4-pinout-specs-projects-datasheet.html>

**Procedure:**

1. Setup experimental setup following the schematic above in the box with the lid open.
2. Collect microphone data for 24 hours.
3. Save and import data to Desktop
4. Run the experiment again but with the lid closed for 24 hours
5. Plot the frequency (bode) plot for the data collected for both data sets using python

# **Results:**

# **Discussion:**

# **References:**

# **Appendices:**