

Worksheet 1: Audio Amplifier

Exercise 1: Amplifier Build Following slides 2-4, carry out the following steps:

- a. Draw out your circuit in your lab book and then based on this build it on your breadboard.
- b. Disconnect the microphone from your circuit and check the DC levels on the inputs/output of the op-amp by connecting in the ADC input. Hopefully, you will see a reasonable match to your previous LTspice simulations!

Exercise 2: Record Data Follow Slides 6-11 of the presentation and tackle the following questions:

- a. Create your C program to record the data and then compile it.
- b. Remove the 1Mohm resistor (slide 4) and connect your op-amp output directly to the ADC input, so it can be digitised.
- c. Reading carefully the instructions for Putty and Slide 11, run your C code and print and save your audio samples to a text file using Putty. Remember that the program should record data in blocks of 3 seconds (24,000 samples).

Exercise 3 MATLAB post-processing Follow Slide 12 of the presentation and tackle the following questions:

- a. Post-process the data and save it to a WAV file. Can you hear your voice in the recording?
- b. Plot your data samples in MATLAB to check the values and see if it matches what you hear.