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ENGR 3530-001 Electronics and Instrumentation

Bonus Opportunity Report

For this assignment, 5 videos were watched for a cumulative video time of 43:29 (43 minutes and 29 seconds). The first three videos were about the TDA 2030 amplifier, the fourth video was about the TDA 2050 amplifier, and the fifth and final video was about volume, bass, and treble control.

Video 1:

YouTube Link: <https://www.youtube.com/watch?v=-qCO7NUpLc0>

Zoom video link: <https://youtu.be/9J6JfhMtleQ>

This video was about building a simple amplifier circuit using the TDA 2030 amplifier. The circuit constructed in this video only used a couple of resistors and a couple of capacitors and produced a high-quality sound. Things learned from this video is one way to construct a good sounding speaker circuit using the TDA 2030 that is relatively simple in construction that used only a couple of components. Some points of confusion regarding this video is if the plate the TDA 2030 is attached to, I wonder if that is just a general base plat or if that is supposed to be some type of heat sink. Another thing I was confused about is the positive and negative wires of the input jack and the wires connected to the speaker, I was not sure which was which when it was wired into the circuit.

Video 2:

YouTube Link: <https://www.youtube.com/watch?v=K4al2t5T00c>

Zoom video link: <https://youtu.be/zliTx0N4Ya0>

This video demonstrated another way to construct a TDA 2030 amplifier speaker circuit. Like in Video 1, the constructed circuit was fairly simple and consisted of only a couple of resistors and capacitors. However, the actual design of the circuit was different as this circuit used different values of resistors and capacitors and in a different circuit layout as well. This demonstrates that there are multiple different ways to create a good sounding speaker with a simple circuit using the TDA 2030 amplifier chip. The questions and points of confusion that I had for Video 1 are the same for this video.

Video 3:

YouTube Link: <https://www.youtube.com/watch?v=mcAMNsmT6uE>

Zoom video link: <https://youtu.be/kMbf8xhKTTs>

This video demonstrated a third way to construct a speaker circuit using the TDA 2030 amplifier chip. The circuit constructed in this video was more complex than the two previous videos. This circuit consisted of more components and more branches to the circuit and the inclusion of multiple IN4007 diodes. This circuit layout produced high-quality sound and demonstrated another way to make a circuit with the TDA 2030 that produces high-quality sound. One point of

confusion I have after watching this video is that I do not believe the guy who made this video provided a clear shot of how he wired the input jack and speaker into the circuit as the video went from the circuit before those two things were incorporated to the testing of the speaker.

Video 4:

YouTube Link: <https://www.youtube.com/watch?v=t4LPzGlr41c>

Zoom video link: <https://youtu.be/91hejLIKysI>

This video was about constructing a speaker circuit using the TDA 2050 with a PCB board. One thing learned from this video is that the circuit layout for the TDA 2050, both demonstrated on the PCB and in the technical documents of the TDA 2050 shown in the video, is that the circuit for the TDA 2050 is way more complicated than the circuits shown for the TDA 2030 in the previously watched videos. Some questions and points of confusion is that I would like to know what the Thermal Fuse ring was and the purpose of that part. Like was it the speaker/woofer/subwoofer? Or was it something completely different? Also I just have general confusion about the PCB circuit construction, this stems from the fact that I personally have absolutely no experience with PCB boards.

Video 5:

YouTube Link: <https://www.youtube.com/watch?v=YIAQ80evrFM>

Zoom video link: <https://youtu.be/zRDptGvgoes>

This video was centered around adding volume, bass, and treble control into your speaker circuit. Things learned from this video is that basic principles of using potentiometers, resistors, and capacitors for adding this control to a speaker circuit. Now there is some confusion on how to incorporate this into a circuit with the TDA 2030 or TDA 2050 as the person in the video used some fancy amplifier boards and did not use any actual Op-Amps.

Phase 2:

These videos were important for Phase 2 of the Speaker Project as the first three videos showed multiple different ways and approaches on how to construct a speaker circuit with the TDA 2030 amplifier that produced high-quality sound. Knowing that there is multiple correct ways to create a circuit is vital so that we will have the confidence knowing that we can create a circuit to match our needs and having the confidence that it will work and produce high quality sound. This is important to my group as we are planning on using the TDA 2030. We are also planning on using the TDA 2050 which makes the fourth video important. This video is important as it showed how to construct the circuit for the TDA 2050 as well as showing the circuit in the technical documentation. This video also showed the incorporation of PCB, and my group has discussed using PCB as a backup in case if we find the breadboard to not be up to the task; so, having knowledge of how to create this on PCB is super important for Phase 2 if our initial plan does not go as planned. The final video is important to Phase 2 as it shows and demonstrates the basic principles of volume, bass, and treble control into a speaker circuit. For Phase 2 we don't

necessarily need to know about treble control, but we do plan on incorporating volume and bass control, so this video will help in our understanding of how to add this to our speaker circuit(s).

Conclusion:

The most important learnings from these videos include gaining knowledge that there are multiple different ways to create a speaker circuit using the TDA 2030 to generate high-quality sound from a speaker/woofer/subwoofer; general knowledge on how to create a circuit incorporating the TDA 2050 and using PCB instead of breadboard; and lastly gaining knowledge on how to add bass and volume control for our speakers/woofers/subwoofers.