

Audio / Arduinos Clubs – Fall 2018 / Spring 2019

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<http://tuttle.merc.iastate.edu/eClubs/homepage.htm>

Meeting times: Mondays at 5:30 p.m.

Meeting places: Coover 3043 (presentations), Coover 2011 (building stuff)

Join the Slack discussion group: email GT above for an invitation.

Why the clubs?

To get better at building real hardware, measuring real things, and making real things work — doing the stuff that real engineers do, but that sometimes get shorted in our curriculum.

Why audio and Arduino?

Both are (relatively) easy. Audio is low frequency (20 Hz – 20,000 Hz) and the circuits for doing simple audio work are not complicated. Arduino is a very gentle introduction to embedded systems applications. Most importantly, both things are fun!

What is required of me?

Nothing. For the members, there are no expectations or obligations. There is no club fee. If you want to participate, just show up at the meetings. You can simply sit and learn about the topics that are discussed. You have the opportunity to build some of the hardware projects. (You have to buy the parts.) If you want, you can present your own project at a meeting.

How do the meetings work?

- The meetings alternate between the two “clubs” — one week audio and the next Arduino. Occasionally, the topic may be relevant to both clubs — like the soldering introduction.
- Typically, there will be a presentation — usually from GT, but anyone can give a talk — about some general topic or the specifics of some project. This year, the presentations will be in Coover 3043 (conference room on the third floor of the addition).
- Then there may be some “stuff building time”, when everyone who wants to work on a project will decamp to Coover 2011 (EE 201, 230, 333 lab room), which has all of the necessary measurement equipment and soldering tools.
- There is no attendance required. Usually, the meetings are “stand alone”, but occasionally, there may be a multi-week project.

What are some activities & projects?

- Learn to solder!
- Learn to program the Arduino.
- Build your own Arduino (bare-duino).
- Build stereo headphone amplifier (Altoids amp).
- Build a desktop amp.
- Build a set of bookshelf speakers.
- Build IoT devices.
- Build embedded measurement devices.
- Build embedded home automation devices.
- Build a high-power amp.
- Build a class-D amp.
- Build a sub-woofer.
- Build a graphic equalizer.
- Learn embedded system communications (SPI, Bluetooth, etc.)
- Learn how to make a PCB.

How do the projects work?

- Typically, GT will try to have detailed instructions on how to build any of the projects.
- You must purchase the parts for any project.
- You can always get your own parts from Digi-Key, but usually, GT will buy larger quantities of the needed parts and will sell those as “kits”. Typically, the kits will be slightly cheaper than buying stuff on your own.
- Small projects might cost \$5 - \$10. Big projects (bookshelf speakers) might cost upwards of \$100.
- No one is required to do any project — you can do none or you can do them all.
- As stated, there will be “project time” at most meetings, but you can do the work whenever / wherever you want.

