

How to Hack Like Your Favorite YouTuber: Intro to Hardware Projects

Description

You've seen them trending on YouTube — creators who make the most impressive projects from glitter bombs to robot dogs. While it might seem impossible, getting started with making your own cool hardware projects is not as hard as it seems.

This workshop will give you a foundation that you can build upon to be successful with hardware hacks. We go over the technical basics of hardware components with interactive examples, then talk about how to approach and execute your project ideas like a YouTuber. You'll leave this workshop equipped with the tools you need to make your own mechatronic systems (and hopefully kickstart your Hack The North submission!).

Learning Outcomes

After this workshop, you will be able to:

- Understand the fundamentals of hardware and know how to work with
 - Breadboards
 - Microcontrollers (Arduino)
 - Motors, sensors, LEDs, and other off-the-shelf components
- Write Arduino code to bring your projects to life
- Start your own hardware projects

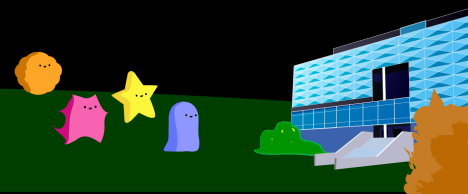
Prerequisite Knowledge

No prerequisite knowledge is required! However, a basic understanding of fundamental code concepts (variables, functions, loops, etc) would help.

Pre-Workshop Checklist

Before the workshop, please make sure you complete the following items:

- Download the Arduino IDE onto your device:
 - Find the download link for your specific computer at <https://www.arduino.cc/en/software> under "Download Options"
 - For Windows, do NOT get the Windows app option
- Bring your questions and enthusiasm!!



- This workshop will be interactive and you'll get a chance to meet other hackers interested in hardware!

Technical Jargon and Definitions

- **Arduino:** A brand of well known microcontrollers, which are like mini computers that control electronic circuits

Timeline (90 mins)

Time	Module	Description
8 mins	Introduction	Introduction to the workshop!
12 mins	Hardware Basics	The fundamentals of hardware components like Arduino microcontrollers, breadboards, sensors, and how to use them
15 mins	Example: Blink an LED	Walkthrough of a simple blinking project
5 mins	Break :)	Quick break
35 mins	Example: Motors	Interactive example where hackers work with motors
15 mins	How to think like a YouTuber	How to approach and make your very own project! How can we think like a YouTuber and break down these crazy project ideas into something we can build? How can we extend our learning from the workshop?

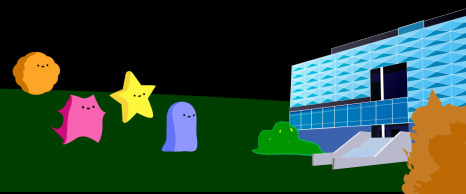
Workshop Lead Contact

Phoebe Luo

phoebeeluo@gmail.com

LinkedIn:

<https://www.linkedin.com/in/phoebe-luo/>



Additional Resources

Hack the North Resources

[Hack the North 2022 Event Schedule](#)

Check this out to stay up-to-date on activities, workshops, and other key happenings this weekend.

Workshop-Specific Resources

[Paul McWhorter Arduino Tutorials](#)

If you want to continue down learning more about Arduino and working with hardware, this friendly old man from Texas has some of the BEST tutorials and are fantastic for the absolute beginner. Purchase the 40\$ kit from Amazon that he recommends and you'll have everything you need to follow along with his tutorials where he explains concepts from this workshop but also goes more in depth about what's happening under the hood.

[Digi-Key Youtube Channel](#)

Digi-key is a retailer where you can buy off-the-shelf parts from, but also posts tutorials on their channel! Check out their playlists that feature Shawn Hymel, covering more advanced topics like using Raspberry Pis and working with RTOS.

Awesome YouTubers to check out

[Mark Rober](#)

[Simone Giertz](#)

[Stuff Made Here](#)

[Allan Pan](#)

[Michael Reeves](#)

