

What is Arduino?

Arduino for your Layout - Part 1

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A high level overview of Arduino do-it-yourself electronics projects for your model railroad. We will explore the many uses and discuss the pros and cons of do-it-yourself vs buying commercially available products.



“a low-cost and easy way for novices and professionals to create devices that interact with their environment using sensors and actuators...”

[-https://en.wikipedia.org/wiki/Arduino](https://en.wikipedia.org/wiki/Arduino)

THIS is an ARDUINO

More specifically, it's an Arduino **UNO REV3**

There are many variations...

(more about that later)

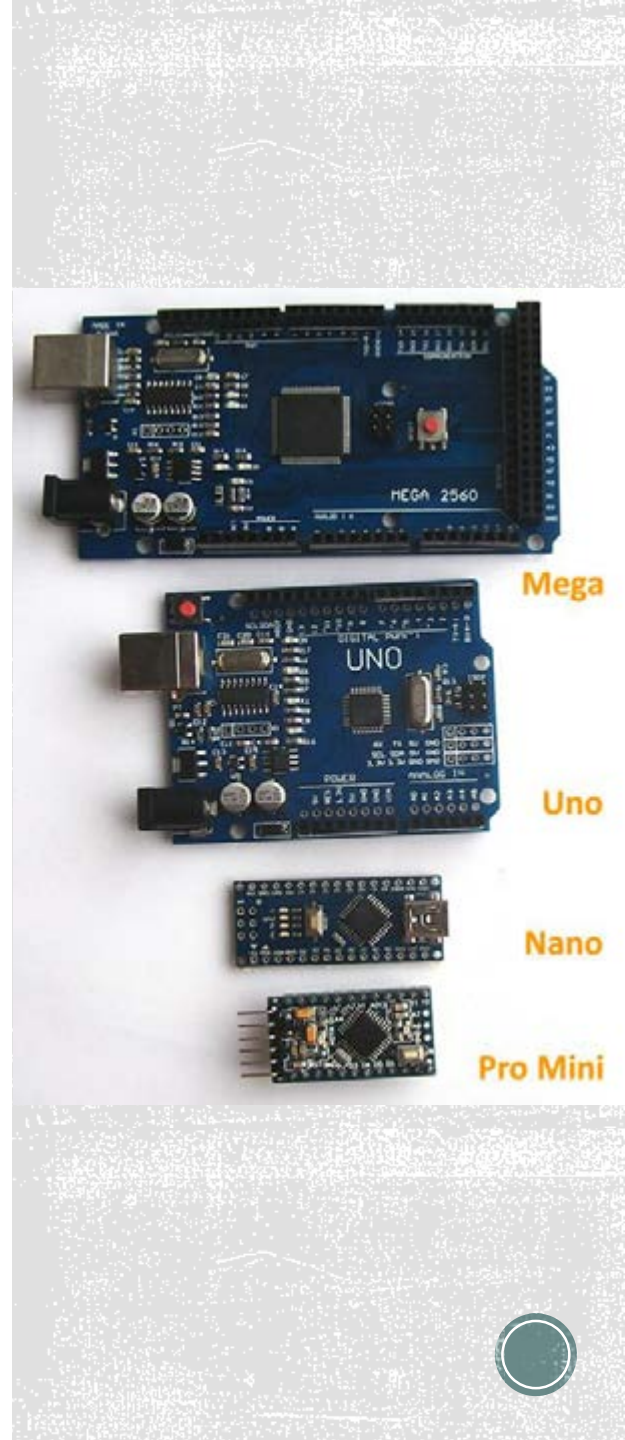
but they all do basically the same thing.

“Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs...and turn it into an output.”



All the different Arduinos!

- Over 30 different “Official” Arduinos
- UNO is very popular for beginners and general prototyping
- Mega, Pro-mini and Nano are also very popular
- Real vs Fake vs Clone
 - Arduino Boards are Open-Source Hardware and are freely copyable. Only the name and the logo are protected.
- Cost - a couple bucks to \$30+





Input - Output Device

Micro-controller. Not quite a micro-computer.

EXAMPLES

INPUTS

- Buttons
- Switches
- Sensors
- Keyboard
- RFID
- Photoresistors
- GPS
- Joystick
- and many more....

OUTPUTS

- LEDs
- Buzzers
- Relays
- Servos
- Motors
- Stepper Motors
- LCD Display
- Serial Monitor
- and many more....





Compatible!

Easily compatible with any other 5V or 3.3V logic electronics



Name Something Game

Name the first *model railroad use* that popped into your head.

We'll discuss if you could use an Arduino to do it.

IS ARDUINO RIGHT FOR YOU?

YES!

- Curious
- Stubborn
- Logical
- Cheap
- Love a challenge
- Mad Scientist
- Prefer to DIY

Maybe not so much...☹️

- Easily Frustrated
- Hate puzzles
- Logic escapes you
- Don't like doing research
- Refuse to ask for help
- Allergic to all things electronic
- No patience.



Unlimited Resources

- Because Arduino is open source and has a huge worldwide following, the resources available on the internet are limitless.
- Google the words “Arduino tutorial”
- Search Youtube for Arduino
- Search Ebay or Amazon for Arduino

- <https://www.arduino.cc/> The Official Home of Arduino
- <https://www.sparkfun.com/> Sparkfun Electronics
- <https://www.adafruit.com/> Adafruit

