

## Circuit Classics

Exquisite printed circuit boards that bring to life Forrest Mims' vintage designs from "Getting Started in Electronics."



Thanks to [Eddie Codel](#) and Noel Von Joo for the creation of the campaign video.

"Star Simpson joins forces with Forrest Mims III to introduce a new generation of budding engineers to electronics. Assembling this lucid interpretation of classic schematics rewards makers with a work of art that's also functional. Educational yet approachable, this is a must for anyone looking to get started in electronics."

– Bunnie Huang

Forrest M. Mims III is a trusted name in the electronics world for good reason: his charming and engaging texts have drawn millions of people into the world of electronics for the first time. I am bringing some of those hand-drawn circuits projects to life by creating an exquisitely designed series of finely crafted and highly detailed boards. These are the Circuit Classics. They make a great gift for a first-time learner, an expert tinkerer, or even just as a fun conversation piece for your desk.

# CIRCUIT CLASSICS

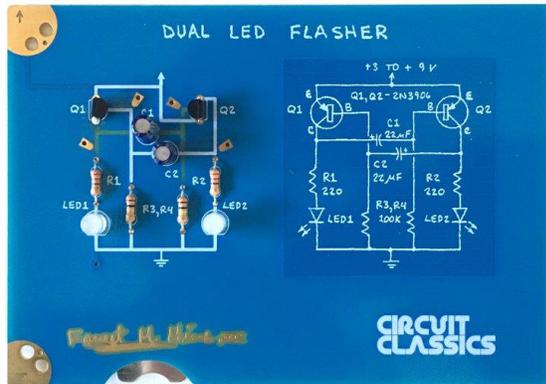
This initial release includes three of Forrest's circuit designs in kit form: the Dual-LED Flasher, the Stepped Tone Generator, and the Bargraph Voltage Indicator. Each kit includes:

- **Printed Circuit Board (PCB):** Includes the circuit itself, the circuit's schematic, and a description of the circuit, all in Forrest's iconic hand-drawn style, traced directly from his books. (Prototypes are OSHPark purple, but the final production run will be blue.)
- **Through-hole Components:** All the components you need to build a working circuit. Easy to place and solder on the PCB thanks to clear footprints and large, friendly solder pads.
- **Display Stand:** made of high-quality blond ash wood, each stand is crafted to let you proudly display your work.

## Dual-LED Flasher

This circuit is a rewarding first project — with just nine components you can get the satisfying effect of making LEDs light up and blink. The circuit's functionality is charmingly complex despite its simplicity. Understanding how it works will provide a taste of the analog side of electronics, and is a fun puzzle!

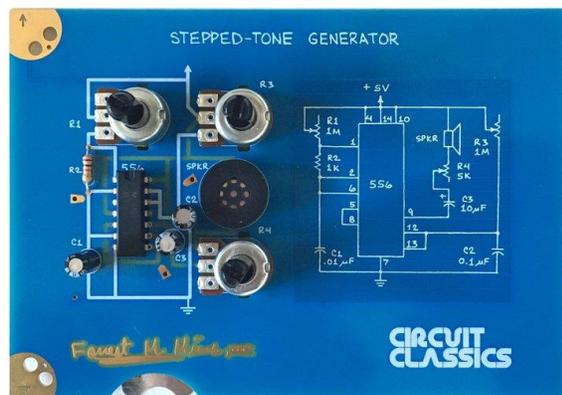
Check out this clip below from Star Simpson's recent appearance on [Adafruit's "Ask an Engineer"](#) for more information on how the Dual-LED Flasher works.



## Stepped Tone Generator

This circuit gained a life of its own, jumping from the pages of the 555 Timer IC Circuits Engineer's Mini-Notebook and out into the world as the storied [Atari Punk Console](#). Well-known for enabling the creation of sounds just like classic Atari console games from the 1980s, it provides a fun audio-centric project, as well as an interesting introduction to digital circuitry, feedback, and oscillators.

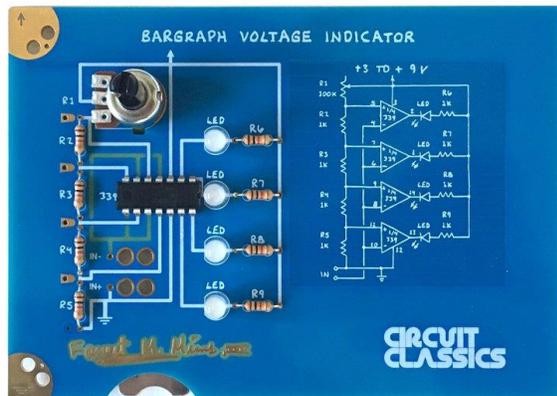
Check out this clip below from Star Simpson's recent appearance on [Adafruit's "Ask an Engineer"](#) for more information on how the Stepped Tone Generator works.



## Bargraph Voltage Indicator

This circuit lets you become a scientist and an engineer and marks the passage of that important milestone of using tools you have constructed yourself. With your own voltmeter you can measure batteries or use it to explore and understand other electronic circuits that you find in the world.

Check out this clip below from Star Simpson's recent appearance on [Adafruit's "Ask an Engineer"](#) for more information on how the Bargraph Voltage Indicator works.



## Features & Specifications

- Alligator-clip friendly drills form clip points for the power and ground in the corners of every board, and to allow for testing on the bargraph voltage indicator.
- Top-layer silkscreen tracks copper on the top layer, while bottom-layer copper traces are indicated by the use of negative soldermask. This creates a 2-layer visual effect. New learners would once have learned about electronics by trying to “read” other boards, holding green 2-layer boards up to a lamp to visualize all the electrical connections. This allows for recreating the experience in a much friendlier way.
- Forrest Mims’ pencil-drawn schematic accompanies on the right hand side of each board, visually aligned to easily connect physical and logical hardware.
- Copper tracks beneath the schematic replicate the notebook lines from the book.
- Every board features Forrest Mims’ signature
- Solder pads designed to be extremely pleasing to solder
- Explanations of how each board works accompany on the reverse side of the board
- Book and page number citations to make it easy to look up the original
- Board Dimensions: 5" x 3.5" x 0.062"
- Board materials: FR4, blue soldermask, ENIG (gold) finish
- Power: alligator clips included; powered by, for example, a CR2032 coin cell (not included)
- Test Points: grabbers, and scope probes
- Stand Dimensions: 5" x 2.75" x 1"

## Manufacturing Plan

The money from this crowdfunding campaign will pay for a production run of the circuit boards, components, display stands, books, and packaging. My goal is to have everything shipped in the fall of 2016.

## **Risks and Challenges**

I have involved manufacturers at every step of the way, and via that and my past experience designing electronics I feel like I have a decent handle on the costs and processes involved in producing the circuit boards and wooden stands and sourcing the components. The only notable risks are the same as for any other manufactured product - unforeseen supply chain problems due to natural disaster and the like.

## **Thanks and Enjoy!**