

Itty Bitty Boards

Written by DC Denison

Meet the founder and president of TinyCircuits



Tim Hollister Photography



TINYCIRCUITS IS AN OPEN-SOURCE HARDWARE COMPANY SPECIALIZING IN DESIGNING AND MANUFACTURING VERY SMALL ELECTRONICS.

Founder and president Ken Burns started the company as a side project in a spare bedroom of his house in 2011. Now housed in an old tire factory in Akron, Ohio, it sells more than 40 tiny products and employs seven people.

You once wrote an article for *Make:* about using your boards to track your outdoor cat, Conley. But you didn't say what you learned about his whereabouts. What do you now know about Conley?

People liked that idea. I estimate that there are now 200 to 300 cats that have been tracked with our boards. I learned that he's lazy. That he spends most of the time sleeping in a neighbor's shed down the road.

What changes when boards get tiny?

Our stuff is based on the Arduino, and it works like a regular Arduino. But by making it small, it allows you to put it in places you've never been able to before, like in very small rockets. You can power and control little Matchbox cars and prosthetic hands.

Are any of your customers spies?

One guy who works here used our technology to make a little spy device that he snuck onto my bookshelf. He used it to turn my air conditioner on and off, randomly, very quickly. That was pretty annoying, until I figured it out.

You manufacture TinyCircuits in the U.S. How do you make that work?

For us, manufacturing here in Akron costs less than outsourcing to China. In San Francisco we wouldn't be able to do that. Just the cost of labor and space would make that impossible. A software startup makes more sense in San Francisco, but for a hardware startup, the Midwest is great. Also, it's really not that hard to get qualified engineering people here and pay them a livable wage. We have some great engineering



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DC DENISON is the editor of the *Maker Pro Newsletter*, which covers the intersection of makers and business, and the former technology editor of *The Boston Globe*.

colleges nearby: Carnegie Mellon, Case Western, Akron University.

What's the biggest challenge when you're marketing tiny technology?

The biggest challenge for all hardware projects happens once the Kickstarter period is over. What typically happens is that the first month after you fulfill your Kickstarter orders, you do about one twentieth of what you did before. That's tough. So if you've had a \$110,000 Kickstarter, like we did, then in the month after that we made about \$5,000 in revenue. Pretty sharp drop off.

It's been called the "Valley of Death."

Because you have that initial money, and you know how many units you have to build. So you do that. But then you have to figure out how you're going to finance the next round. It's tricky. We initially raised \$110,000, and we turned that into \$50,000 worth of debt by the time we actually delivered the product. I don't know anybody who's actually made money on Kickstarter.

How did you get out of the Valley of Death?

We went to a lot of Maker Faires and talked to people. We blogged a lot and posted on Facebook. If you can get independent people to buy your boards and write about them, it has tremendous cred. We've been building that over the last two years. It's slower, organic growth.

All your hardware is open source. How does that work for you?

It opens up a lot of advantages. Our hardware is not that complicated. If someone wanted to copy it, it wouldn't be difficult, so closing it off wouldn't give us that much protection. By opening it up, we're able to play in this much bigger community. And the cool thing is that it really feeds this innovation engine: People use it, add something, and contribute it back; and the pool gets bigger. That enables really rapid innovation. ☺

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