Testimony of Nathan Seidle

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Committee on the Judiciary

Subcommittee on Courts, Intellectual Property and the Internet

U.S. House of Representatives

“Innovation in America: The Role of Technology”

August 1, 2013

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Chairman Coble, Ranking Member Watt, and members of the Subcommittee, thank you for inviting me to speak on the role of technology and innovation.

I am the founder and CEO of SparkFun Electronics. SparkFun is an e-commerce company that sells educational kits and building blocks that enable people to invent and prototype new electronic products. I started SparkFun ten years ago in college. Today SparkFun employs 145 people (has 41 dogs) and manufactures over 70,000 electronic components a month at our facility in Colorado. We are a privately held company that has not taken on venture capital. Last year we had revenues of $28 million. We write tutorials and provide example designs so that our customers can learn how to build complex devices themselves, often without any training in engineering. In 2013 alone SparkFun has taught over 500 science, technology, engineering and math (STEM) educators on modern design tools and curriculum. SparkFun devices can be found in the R&D labs of large corporations including brand names such as Intel, Google, Microsoft and Apple. Our products are in high demand because we evolve with technology as it's released. Our customers are responsible for many innovative new businesses and products that are often based on our designs. To serve the community further, I am a board member on the Open Source Hardware Association (OSHWA) whose purpose is to educate individuals and the general public about Open Source Hardware as well as organize the movement. I also sit on the engineering advisory council of the University of Colorado.

I am here to demonstrate that innovation is not dependant on intellectual property (IP). We manufacture over 450 open source hardware products, all freely available to copy, remix, and sell as long as the product remains open source. Products released with these

rights are called Open Source Hardware[1]. Rather than spend thousands of dollars to secure a patent, or the hundreds of thousands of dollars to enforce a patent, we decided to invest that money back into new products. We have released over 700 unique products over the past decade without patents or IP. We have about 12 weeks before other companies (domestic and international) copy our product and post it for sale on Ebay, Amazon, and Taobao (the Chinese market that is bigger than Ebay and Amazon combined). Many companies would find this threatening and seek legal recourse. We do the opposite and use this pressure to focus our efforts on innovation. Because we know our products will be copied we focus on creating the next new feature, the next major release, the next big thing. We encourage people to copy or "pirate" our products because it leads to shockingly fast innovation.

We are too busy innovating to wait for the USPTO to approve patent applications. The pace of the patent system makes obtaining a patent irrelevant in our technology company where the life of a product is measured in weeks, not years. The cost of filing a patent easily exceeds what a small business can afford. This system no longer helps my small business, it just gets in the way. I don't need a patent to make a profit and, in fact, the creation and enforcement of a patent actually detract us from focusing on innovating. Thankfully, the basics of capitalism are still in play; as long as we can deliver a better product, faster, with better support for the best price, we win. We have posted record profits for the past 10 years.

Attempting to stop pirates is a waste of time. Show me an anti-piracy law or technology and I'll show you a dozen 15 year-old girls and boys who can crack it. The resources spent stopping pirates comes at the expense of innovation and improving the business practices that actually serve the customers and industry. The most efficient way to get reimbursed for creative work is to make it easy to purchase and consume that content. How do you get the market to buy your product or service? Provide better support, better quality, better price,

[1] Open Source Hardware Definition: http://www.oshwa.org/definition/

and better availability. If you show the consumer that you are a better company with which to do business, they will shop with you. This is not a new business model. This is how business has been done for thousands of years. There is no need to waste time, energy, money and resources suing infringers or pirates; our time is better spent innovating.

Through the power of the Internet, SparkFun has 220 distributors in over 100 countries. Half our revenue comes from international sales - this is what a small, modern global company looks like. However, trying to enforce IP protection in 100+ countries is laughable for a company my size. Here's an example of what we experience daily. We released a product called the *Fio*. This small board enables users to wirelessly connect sensors to the Internet. We released the design files so that anyone could take our design, learn from it, and produce their own version. After a few months we discovered a company in China producing a very similar copy of our design. In fact, they improved part of the circuit making the product easier to use and cheaper to produce. They uploaded their design files to the Internet in line with the viral nature of open source hardware. Rather than crying foul, we leveraged all the improvements they had made and released a new version of our own that incorporated their features and some additional features that made the product easier to use. Today the company in China no longer produces the Fio. Their price was competitive but customers came to SparkFun because of our shorter shipping times, better features, and technical support in US time zones. In the Internet age, businesses must become agile. Innovation moves faster than the shield of IP protection.

We love sharing and teaching. STEM is a major pillar at SparkFun. SparkFun started our department of education in 2010 in order to increase the role of electronics and technology in the classroom. We see our role in the STEM world not as leaders but as foundation builders. SparkFun creates as many examples, tutorials, videos, and curricula as possible. We release all of that content with a Creative Commons license[2] that allows anyone to remix, share and even sell our materials. This openness and freedom is crucial; by offering

[2] Attribution-ShareAlike 3.0 United States http://creativecommons.org/licenses/by-sa/3.0/us/

open source hardware and documentation, educators can take our curricula and materials and remix them to fit their particular needs.

Education will always be challenged to find sufficient economic support. Open source hardware provides affordability and accessibility to the classroom. Bringing open hardware/software into the school system allows more students to have access to these tools. Scratch and the PicoBoard are good examples of tools that are quickly leveling the playing field. Scratch is a free, open source, educational programming language that visually teaches students using colorful blocks to control characters on the screen. Originally developed by the MIT Media Labs, Scratch has become a very popular tool used by over 1.3 million students[3] worldwide and over 3 million projects[4] shared between students. PicoBoard is an educational tool that attaches to a computer and extends Scratch to the physical world. Students plug switches and sensors into the PicoBoard and use them to control their Scratch programs. SparkFun collaborated with MIT to create a new, open source version of PicoBoard that is easier to use, easier to build and uses lower cost components. As the PicoBoard is open source hardware any student, teacher or manufacturer can build the board. With low cost educational products such as PicoBoard and the programming language Scratch we can teach students in every corner of this country about programming and engineering. STEM education and open source are all catalysts to a brighter technological future for the United States of America. As manufacturing continues to move to other countries, we need the educational backbone to produce engineers here in America. The most direct route to fixing the gap is to collaborate through open sharing. It will be the *absence* of IP that will make these STEM initiatives successful.

As a business owner, the worst thing Congress can do is to allow monopolies and protectionism to interfere with market forces. For the economy to be healthy we need businesses innovating and competing. America is all about options. Businesses should

[3] http://en.wikipedia.org/wiki/Scratch_(programming_language)
[4] http://scratch.mit.edu/

have multiple options as well, including IP. Intellectual property and copyright are important to the fabric of the economy but they are not the only option. In the future more companies and innovators will consider open source hardware and how it benefits their business. To enhance innovation I encourage Congress to consider providing the following options to future generations:

Recommendation #1: Provide an economic incentive for proprietors or shareholders of a company for each product that is proactively released open source. The benefit to all of society and the litigation burden that is removed from the economy will outweigh the cost.

Recommendation #2: Protect small companies from being bullied through litigation. There are too many small, innovative companies that are shying away from doing amazing work because they fear doing so will put their personal assets at risk.

Recommendation #3: Alter the years of protection patents give to a timeline that better reflects the pace at which technology is produced today. Rather than the protection of a monopoly of 20 years, shorten it to 5 years so that further innovation can be done once the technology is reaching the end of its lifespan.

Thank you for your time. If you have any further questions please do not hesitate to contact me at nathan@sparkfun.com