

Why 3D-printable guns are a terrible idea

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Mention the words "3D printed guns" and you've got an instant, increasingly heated debate on your hands. When you consider there were 16 mass shootings—defined as a shooting with multiple, random victims—in [2012](#) [1] with at least 88 people dead including children, it's definitely a topic worth discussing.

My take? No one needs a 3D printed gun or the ability to create one.

Obviously, it's not that simple. Gun control in general is not a black-and-white issue, so it follows that printed guns would be an equally gray area.

The focus of this post will be on printed guns, but it is difficult to separate the conversation from gun control in general. Having just read my thoughts on printed guns, it's pretty easy to deduce my viewpoints on gun control. I grew up in an area where hunting is a big sport, so there were always guns around, accompanied by people who knew how to use them. I respect that, but when it comes to assault weapons, I'm all for the creation of a more effective ban, so it follows that I don't see a need for the option to print your own AR-15.

But first, let's talk tech. No one has perfected a fully printed gun—that I'm aware of, but feel free to correct me in the comments—but that seems to be the general direction. The trend is to develop printable parts like the magazine or lower receiver—where the round is received from the magazine—and fit them into normal gun components.

But there are plans—particularly from groups like [Defense Distributed](#) [2]—to make an entire gun. The group calls the open source plans that they make publically available "Wiki Weapons." The group named their specific gun blueprint, which includes a high-capacity 30-round magazine, "Cuomo", a reference to New York Gov. Andrew Cuomo's ban on magazines with more than seven rounds. Setting aside how incredibly immature it is to mock a representative trying to lower the amount of mass shootings by banning high-capacity magazines, we need to take a look at the materials being used to create these weapons.

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The campaign of Defense Distributed raises incredibly alarming considerations when it comes to making guns from plastic. The printable plastic, whether it's ABM or another material, probably isn't strong enough to withstand the shock and pressure associated with firing a weapon. Mostly likely, it will just fall apart (view [video](#) [3] below for actual gun falling apart after 6 shots), which is incredibly dangerous and harbors quite a large risk of doing yourself harm should your firearm fall apart while you're shooting it. It's going to be a long road to a real gun, but even the process of getting there is frightening.

One [blogger](#) [4] figured out how to make a plastic receiver:

The problem is that even the strongest 3D-printable thermoplastic currently available for the [FDM](#) [5] process (Ultem 9085) doesn't even have half the tensile strength needed to withstand the 24,000 psi maximum allowed chamber pressure of the .22LR round as defined by [SAAMI](#) [6] (the Sporting Arms and Manufacturer's Institute).

As such, yes, a 100 percent 3D-printed gun made on a RepRap could certainly go "bang," but even with a barrel of large enough diameter to keep it from exploding, there would be so much deformation in the bore that most of the available energy would be sapped by gas leakage around the projectile (to say nothing of the utter lack of accuracy). In the end, you'd have a smoking, charred crater left for a barrel bore after the single shot.

Alarmingly, the most recent reports from [Defense Distributed](#) [7] claim they have a part which withstood 600 rounds. That is a terrifying amount of rounds from a made-at-home plastic part. What possible *positive* event could result from having this available to the general public?

For the sake of argument, let's assume that making an entire, functioning gun out of plastic is feasible in five to ten years.

[Legally](#) [8], you can make your own gun, but you can't distribute the guns. That's why the printable guns fall into a gray area. If you're just distributing the plans, you're not technically distributing the guns. On the other hand, you're heavily involved in the process of distributing the plans, which then allow anyone to make the gun. In most states, you can't just walk into a store and walk out with a gun, but if these 3D printers become widely available alongside open-source blueprints for firearms, there is not an option for regulation.

People occasionally raise the argument that if you can make guns from other things, then any regulation of 3D printing is worthless. I disagree, wholeheartedly. These are actual weapons we're talking about, with the potential to do great harm, and they are *easy* to make. If you're going to construct a gun from other materials

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in your home, it requires a solid understanding of engineering, design, and guns.

In addition to the simplicity, these guns would be incredibly cheap. Frankly, I'm okay with guns being expensive, even prohibitively so, if it lowers the number of guns available. Critics say even if you regulate 3D guns, people who want guns will seek them elsewhere. This is true, but eliminating this option gives would-be gun seekers—particularly guns with high-capacity magazines—one less avenue. It's not about completely eradicating guns from the face of the planet—that's a pipe dream—it's about putting barriers in between owners and makers so that the guns don't end up in the wrong hands.

As far as the failure of the [1994 assault weapons ban](#) [9]—someone will bring this up in the comments I'm sure—just because something worthwhile fails the first time doesn't mean you stop trying to get it passed; you come up with a more effective, efficient, and real-world solution, and you try again. You don't make *more* assault weapons available.

Let's recap: cheap, easy-to-make firearms that can't be detected by a metal detector and are widely available via open-source blueprints. It's an alarming prospect that needs to be taken care of before it can become an issue. It may never be a problem—the opportunity for homemade firearms has been there all along and never taken off—but that doesn't mean it should be ignored or allowed. These open-source blueprints need to be taken down and the policies against them strictly enforced. It won't eliminate all of the problems, but it will make printed guns a more difficult option.

At some point in every argument regarding new tech and the potential for danger, you have to weigh the risk to society against the reward. When it comes to printable guns, there is no reward. There is a reason many of the open-source blueprint companies removed guns from their archives after the Sandy Hook shooting, because the thought of making guns that easy to create is scary.

At the end of the day, it comes down to regulation, and guns that are made at home are too difficult to regulate. I'm not willing to risk it when there are other—decidedly less scary ways—to obtain a registered, regulated firearm.

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[1] http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&ved=0CDUQFjAA&url=http%3A%2F%2Fwww.thenation.com%2Fblog%2F171774%2Ffifteen-us-mass-shootings-happened-2012-84-dead&ei=gr4wUYfpGYbmyQHv1oDICw&usg=AFQjCNF8LJBj_cjWVd4sEL1sVTEHqH_64A&sig2=H5ZTbzEO7uhLR_tjMEm7EQ&bvm=bv.43148975,d.aWc

[2] <http://techcrunch.com/2013/02/07/video-of-3d-printed-gun-magazine-shows-off->

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deadly-high-capacity-wiki-weapon/

[3] <http://www.nbcnews.com/technology/futureoftech/3-d-printed-gun-fires-6-shots-then-falls-apart-1C7404226>

[4] <http://www.haveblue.org/>

[5] http://en.wikipedia.org/wiki/Fused_deposition_modeling

[6] <http://www.saami.org/>

[7] <http://www.theblaze.com/stories/2013/02/27/wiki-weapons-project-shows-3d-printed-gun-part-can-withstand-600-rounds/>

[8] http://news.cnet.com/8301-11386_3-57499326-76/you-dont-bring-a-3d-printer-to-a-gun-fight-yet/

[9] http://en.wikipedia.org/wiki/Federal_Assault_Weapons_Ban