

Why would anyone want to build a RepRap? What benefits are there from owning a RepRap? The RepRap takes in a plastic filament/line and squirts it out into a 3D shape. It is an OpenSource project. This means all the details to build one yourself are available. This is also how the project is further developed, everyone that can add to it and make it better, does. It's a collective effort in the improvement of technology open to anyone. OpenSource is all over today. What does this mean exactly? Well, first of all you can build a Prusa Mendel model for around \$500-600 if you are able to source all the materials yourself very well. You could even get the price as low as \$350-400. This is in comparison to buying a commercial 3D printer, these usually cost around \$10,000! This is just the cost of the machine, I'll make more comparisons later. There are other similar-type projects, some of which stemmed from RepRap, these printers typically run around \$1,500-\$2,000. You can get RepRap kits that can just be put together with a couple wrenches and an allen wrench/scerwdriver, no sourcing or making sure you have everything, these kits usually run around \$1,000. I am offering kits and source materials on this site so anyone of any level can build one. I will even offer kits to break it up to make it easier to purchase. Here are some of the comparisons in cost:

- [Botmill - Axis 3D Printer - RepRap Prusa based](#) (\$1,500)
- [MakerBot Thing-O-Matic](#) (\$1,099)
- [MakerGear Mosaic 3D Printer](#) (\$999 for kit, \$1,499 assembled and tested)
- [uPrint SE and uPrint SE Plus](#) (~\$14k uPrint SE and ~19k for the Plus version)
- [ZPrinter \(Various sizes\)](#) (\$15k-\$25k)
- [Objet Desktop Printer](#) (\$19.9k+)

The top 3 are more along the lines of the RepRap and the bottom 3 are commercial versions. In general, a 3D printer is meant for what's know as rapid prototyping. An engineer comes up with an idea, they create a model, hit print, and they have a model of the item. They realize they need to make a change on it, so they do so, then hit print again to get another model to test out. When they are done, they find a way to put it into mass production cheaply. This mold is being shattered though. The expensive commercial 3D printers out of the price range for your average person to buy. The full blown kits may also be hard for any one person to buy it all at once also though, but at less than 1/10 the cost, it's certainly easier.

Now for some further comparison and usage. There are two main types of 3D printing. One uses a powder and melts or bonds each layer by layer, similar to the way shown in this video:

{youtube}8aghzpO_UZE{/youtube}

then there is the extruder type that feeds in a filament (thin plastic strand), melts the plastic in a heated head and then squirts it out, like this:

{youtube}F2aUg6A5koQ{/youtube}

The filament is much cheaper than the powder. You can get the material for around \$10/pound for the filament compared to around \$100-\$200/pound for the powder. So, not only are the machines considerably less, so is the material. Now, speaking about the material. You can use various types of material, you just have to adjust the settings a little bit. The most common material used in a RepRap right now is PLA, a biodegradable and plastic made from renewable resources. Here's where some fun comes in, we add recycling plastic into the mix. We cut up usable plastics from old recyclable items, then feed it into a machine that melts it down and spits out a filament that can be used in the RepRap. There is already work done on this and there is something that already works with HDPE (milk jugs). The project is called RecycleBot - <http://www.thingiverse.com/thing:12948>

. The person running the project is at Michigan Tech (where I went to college and it's nearby) and they have a group there called the "Michigan Tech in Open Sustainability Technology" Research Group. This is essentially what they are working on making, but also making it run off solar power. I am working on getting involved with them. I hope we can find a way to recycle good plastics that can be used. This would make material costs pretty much nothing and it would be recycling old material! The group's web page is located at -

<http://www.mse.mtu.edu/~pearce/Index.html> .

How about print quality? The RepRap extruder nozzle can be swapped out to different sizes for print quality and speed. The RepRap has gotten quite fast compared to what it used to be, but isn't quite as fast as the commercial ones. The print quality is just as good, but you cannot print multiple colors or support materials. Otherwise, the quality of the pieces that the RepRap prints is great. They can even be used as normal items. That's actually where many of the pieces to build the RepRap come from, you print them from another RepRap, i.e. it replicates many of its own parts. You can make a cup with a RepRap if you want, so it can be water-tight. You can print out all sorts of usable items with them and that's the whole point. It's not about rapid prototyping anymore, this is more like an intro-replicator. You could scan in an item and print out a replica or you could just go to a website, download a model, and print it off. Thingiverse is a great site to get models, here are some of my favorites:

- [Tape Dispenser](#)
- [Tool Caddy](#)
- [Ear Bud Holder](#)
- [Recycled Bottle Coat Hanger](#)
- ["Alligator" Clip](#)
- [Knitting Loom](#)
- [Toy Figures](#)
- [Block and Tackle](#)
- [Belt Clip Replacement](#)
- [Small Funnel](#)
- [Various Occupy buttons](#)

So really, this kind of device is a big game changer. This can allow people or a group of people within a community to create items instead of purchasing them from some of the large corporations for a higher price. A major goal of RepRap is to get the cost down to \$200-\$300 so that most people can afford one if they wanted to. We can now print off replacement parts and doors for items that break instead of buying a brand new one. We can print out nearly any items the imagination desires. It is limited to the strength of the plastic though, which is pretty decent, but some things need to be taken into consideration when printing (you can kind of print on thin air, but not entirely). This is just one thing that communities need to have in order to become more self-sustaining. Being an OpenSource project there is lots of help available from many friendly people and I will gladly help you get yours going (especially if you buy items from me). I will even help you get your own store started like this one if you want. I am very unique, have open methods, and many from the old ways always tell me that my ways will not work (because it's not money oriented), but I hope to once again show them they are wrong. Once I can get this going pretty well, I plan to dabble more into OpenEcology and help that project along as well. As a whole, we all need to become more reliant on our communities and not so much on the large corporations that will use unethical methods to make money. We very much support this. Gala Automation Systems is a small family business made to help support our family and stop supporting large corporations in the long run. Please help support us, we will be happy to support you, just let us know you're there. :)

If you are interested in putting together a RepRap, head over to the "[What do you need?](#)" section for an overview of what you will need to make one. We make it easy and provide items here if you don't want to try and sourcing all of it. We offer common kits in case you can only source some of it locally (which is likely the case). We also offer kits that can just be put right together and have everything you need.

