RepRap – the **Rep**licating **Rap**id-prototyper

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http://reprap.org

Look at your PC setup. Imagine that you could hook up a 3D printer to it. Instead of just printing on sheets of paper this 3D printer makes real physical objects, given a computer description of what the objects are shaped like. You could make lots of useful stuff. But interestingly you could also make most of the parts to make another 3D printer. You would have a machine that could copy itself.

RepRap is a project to design and make just such a machine. Today you could buy a commercial 3D printer that does not copy itself for about US$20,000. The first RepRap machines can't quite make all of their parts – you have to buy a few standard ones to add on, like electronic chips. But together those extra parts cost about US$500. So take them, a couple of kilograms of plastic, and your time – and you have a RepRap machine. And then you can make more RepRap machines for your friends...

All this is entirely free of royalty payments because the whole RepRap project is copyrighted and distributed on the web at no cost under the open-source GNU General Public Licence. Also, because you have free access to all the designs for RepRap, you can improve them (using open-source design software, naturally), and then use your original machine to make a better one. Afterwards – if you wish – you can post your improved designs on the web so that others may improve their RepRap machines too.

The RepRap project was started in February 2004 by me, when I published the idea (again under the GPL) on the web. Since that time I have led the the project team. This team consists of me, my PhD student, and four volunteers in Canada, New Zealand and the USA. In addition, about twenty more volunteers are making machines based on the RepRap design downloaded from the project's website.

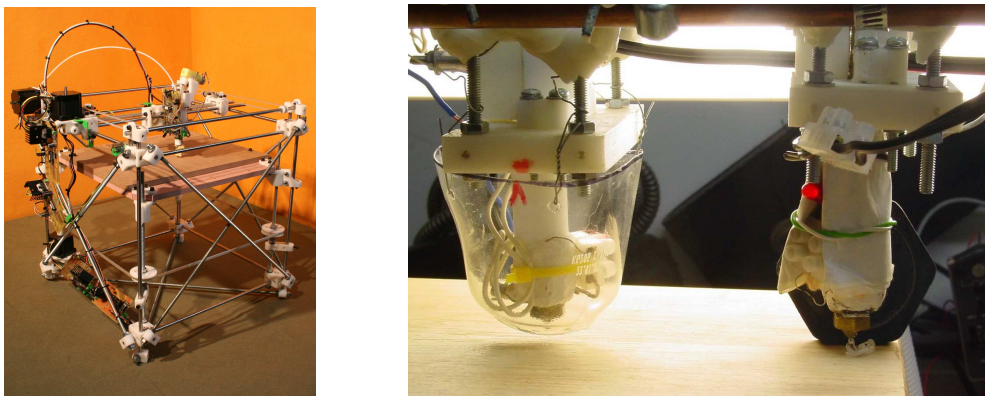

Figure 1: The left-hand photograph shows Version 1.0 ("Darwin") of the RepRap machine. The photograph on the right shows a print-head-printed print-head printing. The left-hand head was made on a commercial 3D printing machine. The right-hand head was made by the left-hand head and is shown starting to print for itself.

Today, virtually everyone in the developed world runs their own printing works, their own photographic laboratory, and their own CD-pressing plant. Moving from two-dimensions to three, why shouldn't they also make their own MP3-players, their own coat hooks, and their own car wing mirrors?

And why shouldn't they use the machine that does the making to make new improved versions of itself?

" [RepRap] has been called the invention that will bring down global capitalism, start a second industrial revolution and save the environment..." – The front page of *The Guardian* on November 25, 2006.

" The promise of advanced fabrication technology that can copy itself is a truly remarkable concept with far reaching implications." – Sir James Dyson on RepRap, 17 April 2007.