CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)

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Project Number

35230

Project Title

Construction of a Fused Deposition Modeling Style Rapid Prototyping Machine

Abstract

Objectives/Goals

To build a 3D printer capable of producing high quality prints similar to the quality of commercially produced printers, at a lower cost, and to gain a greater understanding and appreciation for the mechanisms and electronic systems involved in 3D printing.

Methods/Materials

3D printed parts, Steel frame pieces and hardware, RAMPS electronics, Wade's Extruder Reloaded, J-style hotend, Wood and acrylic build area.

Results

We have constructed a fully functional 3D printer, at fraction of the cost of a commercially produced 3D printer, and we have gained the understanding necessary to fully design a custom rapid prototyping machine.

Conclusions/Discussion

Commercially produced printers are definitely much easier to operate and set up, but several times more expensive in most cases, and don't offer the educational benefits of designing or building your own.

Summary Statement

Our project is a self-built 3D printer capable of producing 3D parts similar to those made by commercially built printers, and it was assembled for a fraction of the cost.

Help Received

Used 3D printer and some tools at the Center for Advanced Research and Technology, Clovis, CA