CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY

Name(s)

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Project Number

38816

Project Title

3D Printed Water Filter

Abstract

Objectives/Goals

Our goal was to design something that could help different parts of the world obtain clean water. Our problem that we were addressing was the lack of clean, drinkable water in many parts of the world. We wanted to design a solution that could be 3D printed that would help filter water.

Methods/Materials

Using Solidworks Computer Aided Drafting software at our school, we were able to design different prototypes that would filter the water. The filters were designed and 3D printed and then tested with filtration materials that are easily available. This was a layer of cotton, a layer of activated carbon, and a layer of sand. After each prototype was tested, the next prototype was designed, which improved on the last one. Each prototype was created based on the observations of the previous prototype's testing results.

Results

Based on the results of each prototype, a working filter was able to be designed and 3D printed that resulted in cleaner water and no leaking. This was based on 5 different rounds of prototypes, with each prototype being an improvement on the previous one based on the observations.

Conclusions/Discussion

This project resulted in an expansion on the use of 3D printing in the field of environmental engineering. What this project showed was that an effective and useful model for a water filter could be designed and engineered that can be used in all parts of the world to filter water.

Summary Statement

We were able to design and 3D print a water filter that effectively filters polluted water.

Help Received

We were able to do the design, 3D printing, and testing ourselves. Our STEM teacher assisted us by teaching us how to use Solidworks CAD software.