

Project #	Project Name	Project Track	Project Family
P14418	Power System for the B9 Better Water Maker		2010-P11412; 2012-P13417
Start Term	Team Guides	Project Sponsor	Doc. Revision
2131	Gerry Garavuso and Gary Werth	B9 Plastics	Doc. Revision 1

Project Description

Project Background:

Every 20 seconds another child dies from a preventable waterborne illness caused by poor quality water, sanitation and hygiene. B9 Plastics, a not-for-profit organization, manufacture the “Better Water Maker” (BWM); a human-powered water purification device. The BWM is designed as a hand-crank to provide the power to the UV-bulb in order to “clean” the water. Past RIT MSD projects had very similar needs and requirements but were not successful in developing a desirable product. Since the generator will be used mostly by women and children, it must be re-designed to reduce the user’s effort. It is our team’s goal to produce a prototype that provides the minimum power of 17W while making it fun and easy to use. By using proven technology and off-the-shelf components, our team will provide a suitable product that ideally has the potential for mass production. The Better Water Maker produces gallons of sanitized water for pennies, which is exactly what people need in developing worlds.

Problem Statement:

The Better Water Maker was developed to disinfect water in nations with high mortality rates due to poor water and sanitation systems. The goal of our team is to provide a low cost, efficient power generation system for the Better Water Maker that does not tire the user while it is fun and easy to use.

Objectives/Scope:

1. Easier method of power production (Designed for women and children)
2. Reduced manufacturing costs
3. More efficient power generation
4. A product that is potentially fun and comfortable to use
5. A product that utilizes off-the-shelf components
6. A design that is durable & reliable

Deliverables:

- Project Plan
- Functional Prototype
- Instruction manuals that are easy to use
- Confirmation of results from appropriate testing
- Schematics/Specifications

Expected Project Benefits:

Two of our most important stakeholders are the Better Water Maker users and B9 Plastics. We expect to provide to B9 Plastics a working prototype that has a reduced manufacturing cost, a more efficient power generation system, and off-the-shelf parts. For the end users, as a stakeholder in this project, we plan to provide a more ergonomic design, that is more comfortable and requires less effort to produce the minimum manual power, as well as an easily repairable design, designed for women and children, and a durable design. For both stakeholders we will also provide easily interpreted manual, documentation, and completed test results to prove the project’s success and the new Better Water Maker is better.

For our other stakeholders, such as our team, our guides, and the RIT Senior Design Program we will provide proper documentation, test results, dedicated team effort, the success of completing all our team goals and necessary deliverables, and a continued good reputation for RIT.

Core Team Members:

Jacob Kleinberger; Jessica Fuss; Liz White; Kyle Jordan; Chris Falanga; Erika Correa

Strategy & Approach

Assumptions & Constraints:

1. Being able to heavily reduce manufacturing costs, while concentrating on the power generation system.
2. This is the third rendition of this project with similar customer needs, so reducing the manufacturing costs and effort needed to produce the water more than it already has been will be a challenge.
3. Satisfying all the needs of our several stakeholders in one project will be difficult.
4. Women and young children are assumed to be the end users
5. Design changes may require new plastic molds which are costly

Issues & Risks:

- Benchmark enough to ensure the finding of the needed technology for this project so the team does not have to “reinvent the wheel.”
- Deciding whether to improve the current design or to create our own version of the Better Water Maker
- Risk assessing any design changes to be able to satisfy the needs in an optimal fashion.
- Having enough time to address and correct problems before the completion of MSD II.
- Producing a product that is 100% reliable.