Open Source Ecology

The Shumaker Family Foundation

Letter of Inquiry

January 31, 2012

To The Shumaker Family Foundation,

Open Source Ecology addresses the environmental/climate crisis and social injustice at the root of the problem, while providing innovative education opportunities for hands on learning in Missouri as well as across the world through our online training programs. We would like to invite the Shumaker Family Foundation to work with us to have, what we believe will be, a historical impact.

We are a network of engineers, farmers, educators, and multi-skilled collaborators working together to create the **Global Village Construction Set (GVCS)**, an open source, low cost, high performance technology platform of the 50 machines most responsible for high living standards in many parts of the world. The GVCS lowers the barriers of entry into manufacturing, construction, and agriculture, and can be used to create small enterprises or entire economies, whether in rural Missouri, where the project was founded, in urban redevelopment, or in the heart of Africa.

The GVCS is available for everyone to use to create high living standards for themselves either through developing small businesses or vibrant communities with integrated trade-based economies. The machinery costs, on average 49% less than products sold by commercial manufacturers, and it can be fabricated and serviced by the end user to save even more (on average 70%). The platform includes multiple low cost, do it yourself, clean energy technologies including biomass pelletizers, gasifier/burners, solar concentrators, modern steam engines, and wind turbines. The environmental impact of our work, at its core, is due to the fact that we are accelerating the re-localization of manufacturing economies, where wealth is based on how well regional natural resources are managed, while drastically reducing dependence on fossil fuels.

The GVCS development pipeline is a four step process that covers research/design, prototyping, field testing, and documentation. In parallel, we manage the Open Source Ecology Fellowship Program to train individuals how to fabricate their own productive capital and use it to establish their own small businesses. We also provide extensive documentation to facilitate independent replication of the technology and enterprise models anywhere in the world. Documentation includes the following: (1) design rationale; (2) 3D CAD files; (3) 2D fabrication drawings; (4) CAE analyses; (5) CAM files (where applicable); (6) exploded parts diagrams; (7) bills of materials and sourcing information; (8) scaling calculations; (9) A-Z instructionals; and (10) cost and performance comparisons to industry standards. All documentation is openly available on our website, along with high-quality video tutorials showing how to fabricate the machinery.

Our work is being independently replicated throughout the world and used as the basis for small business enterprises. Our collaborators contribute to our wiki (3,300+ pages), online forum, and our YouTube channel, which has over 700 video updates tracking progress from Europe to Texas. To illustrate, a high school class in Los Angeles is raising money to build the LifeTrac, our open source tractor, as an engineering class project. They are collaborating to raise money for materials, have found a local machine shop to work with them, and they are donating the final product to the South Central Farm, the famous urban farm that was the subject of the 2008 Academy Award nominated documentary *The Garden*.

Open Source Ecology was founded by Dr. Marcin Jakubowski outside of Maysville in 2004 on a 30 acre permaculture site held as a permanent community trust called the Factor e Farm. He is a Princeton graduate with a PhD in Physics from the University of Wisconsin, a 2011 TED Fellow, a 2012 Senior TED Fellow, and was recently designated a 2012 Shuttleworth Fellow for his work with OSE. We were awarded a $100,000 grant from the Ewing Marion Kauffman Foundation in Q4 2011, and we have a vibrant community of supporters called our True Fans, numbering above 520, who donate $10/month to Open Source Ecology. We also waged a successful Kickstarter.com campaign for $63,000 and received repeat grants from an anonymous foundation for $40,000 and $63,000 to cover the cost of constructing a 3,000 sf training facility at Factor e Farm as well as 10 living units to house OSE Fellows and GVCS developers. Finally, Dr. Jakubowski's TED Talk was rated the 6th best of the year by the Huffington Post.

The total budget for the development of the Global Village Construction Set is $2,200,000. We have completed four beta-releases and have secured funding for an additional 14 machines. The average cost for the complete development of each of the 50 machines is **$43,700**. Each machine is researched and designed by mechanical engineers, undergoes three rounds of prototype testing, and is extensively documented by mechanical draftsmen, technical writers, video producers, and industrial designers (AutoCAD). The outcome of this process is the open publication of a complete machine design in its first iteration (version 1.0). From there, the technology is integrated into our fellowship training program and independently replicated throughout our network, and further revisions and expanded adoption continue indefinitely. The long-term outcome of a strategic grant investment is a piece of productive technology that will support individuals, communities, and enterprises for decades, across generational lines and throughout the world.

We would like to ask the Shumaker Family Foundation to select one of the remaining machines and partner with us in its development. It is a unique opportunity to have a targeted impact, promoting environmental regeneration, social justice, and education opportunities, that will truly be a gift that keeps on giving and offers, what we feel is, an outstanding return on investment.

Thank you for considering our request.

Sincerely,

Aaron Makaruk
Development Officer
Open Source Ecology

LifeTrac
open source tractor