ROCHESTER INSTITUTE OF TECHNOLOGY

HACKING FOR HUMANITY: INCREASING PARTICIPATION IN HUMANITARIAN FREE/OPEN SOURCE SOFTWARE DEVELOPMENT THROUGH "RANDOM HACKS OF KINDNESS" GLOBAL HACKATHONS

Submitted as a Capstone Project Proposal in partial fulfillment of a Master of Science Degree in Professional Studies at RIT's Center for Multidisciplinary Studies

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CAPSTONE PROPOSAL PLAN

ABSTRACT

This capstone will address the important problem of improving the exposure of, and participation in, the Random Hacks of Kindness Global Hackathon.

Hackathons—or social coding marathons—are focused events that require low-time commitment, but can provide high-impact results. In the case of Random Hacks of Kindness (RHoK), this is achieved through partnering with International organizations such as the PeaceCorps, Amnesty International, and the Red Cross, as well as governments, emergency responders, volunteers, and aid workers around the world, to identify pressing but solvable problems that can be tackled over the course of a weekend (RHoK.org/about).

The ultimate outcome of this proposal will be increased awareness and exposure to the history, process, and impact that events such as RHoK can have on some of the most complex problems facing humanity; leading to increased participation, stronger partnerships, and a higher quality and quantity of technical solutions.

PROBLEM BACKGROUND

It is not just one, but many problems that organizations like Random Hacks of Kindness (RHoK) attempt to solve each year. There are thousands of volunteers who donate their time and effort to answer the call from aid organizations such as the PeaceCorps, however, these volunteers do not always possess the requisite technical skills to build their own solutions.

More often than not, many of these aid organizations must prioritize their budgets to meet the physical needs of devastated and impoverished communities. Hardware and software development projects, though having the potential and capacity to have significant impact, are prohibitively expensive, and are problematic to fund, due to Intellectual property issues and talent deficits within aid organizations.

Most technical professionals with the capabilities to build such products are in high demand in the global labor force, require extensive education (with extensive loans to repay), and are accustomed to high-technology environments. Volunteer work rarely takes place in highly technological destinations, is rarely compensated at the same levels as private-sector employment, and usually require multi-year tours of duty.

If a project is not developed 'in-house' at an organization, buying an 'off the shelf' solution is usually the only alternative. These solutions require the aid organization to purchase expensive licenses, in many cases on an annual or monthly basis, for ***each*** location they would like to use the solution. These solutions almost always require site-specific customizations to solve a particular kind of problem in ***each*** location, which requires technical prowess, and incurs additional consulting, support, or contracting costs. Software licenses themselves can be prohibitively expensive, let alone paying for customization and maintenance.

Enter *RHoK.org*, Random Hacks of Kindness. An international organization whose mission is "to create a self-sustaining global community of innovators building practical open technology for a better world, and to ensure their work creates impact in society." Through partnering with public and private sector organizations, RHoK hosts world-wide collaborative coding events that produce solutions to a whole gamut of problems over the course of 48 hours.

United Nations Secretary General Ban Ki-Moon, gave the keynote address at the 2nd annual Random Hacks of Kindness kickoff. Below is an excerpt of his address hosted at the *United Nations Global Pulse Blog, UNGlobalPulse.org:*

"In this room, we have two cutting edge 21st century movements coming together.
The first is the participatory development movement, where developers work with people in need to improve their lives. Because people have a sense of ownership, what is created is more sustainable, appropriate, and effective. The second movement is the Free/Open Source Software movement, in which programmers around the world work together to create tools that are available to anyone. This is software that people can use to raise their standards of living, and those of their communities. Both movements have a common

denominator; empower people at the grassroots level to build their own solutions. The global pulse initiative of the United Nations is also about harnessing technology for the greater good." (UNGlobalPulse.org)

At the federal level, there have been a number of initiatives and statements of support that have surfaced on *Whitehouse.gov* since President Obama took office in 2008, starting day one of his first term with the *Open Government Memo* from the Office of Management and Budget. Aneesh Chopra's *Hacking for Humanity* blog post on the Whitehouse Blog was specifically released to help promote RHoK participation. Most recently the comprehensive *Digital Government: Building a 21st Century Platform to Better Serve the American People,* was released which is a compilation of Open Source and Open Government strategies all collected in one place. Walking the talk and leading by example, the site itself is hosted Drupal, and was built with Bootstrap, both pieces of Open Source Software. The Whitehouse has even begun to give back to the community, and established an official presence on upstream websites and online code forges, as evidenced by Peter Welsch in his Whitehouse.gov blog post *Open Source and the Power of Community.*

Though Government-as-a-Platform, Open Government, Open Data, and Humanitarian Development have all been supported as proposed solutions at the national and international level, there is still a problem; there are never enough people to start, let alone finish, all the problems submitted for this event, and others like it.

PROJECT DESCRIPTION

The solution I am proposing is an entire storytelling package:

1. History of the Random Hacks of Kindness Organization
2. Narrative account of our local event in Rochester
3. Compilation of press and media coverage about our event
4. Source code visualization of the activity and submissions developed in Rochester
5. and the scripts and code used to generate such visualizations.

I will be working with the Director of the RIT Lab for Technological Literacy, and organizers from the RHoK organization to tell this story. The goal is to be taken on as an unpaid volunteer contractor to develop these materials on behalf of this organization who will then be my "client." These materials will be used as a promotional tool to encourage participation in future events.

The resources I will have available are my laptop (IBM T530 Thinkpad), the code forge where most of the RHoK projects' source code are hosted (Github.com), the Innovation Challenge Website (InnovationChallenge.PeaceCorps.gov), a source code visualization library (Gource), the video hosting website where I will upload my rendered visualization when it is completed (Youtube.com), and Vim, the text editor through which I will write both the narrative, and the code to develop the visualizations.

My work will be conducted in the FOSSBox, an applied research lab located within the RIT Center for Student Innovation.

CAPSTONE PROJECT CONSULTANT

Stephen Jacobs is a Professor in the School of Interactive Games and Media in the Golisano College of Computing and Information Sciences at Rochester Institute of Technology. Professor Jacobs is also the Director of the RIT Lab for Technological Literacy, home of the FOSS@RIT Applied Research Lab, and the organization that staffed and organized the Random Hacks of Kindness Rochester Hackathon.

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Visiting Scholar
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September 1995 – Present (17 years 6 months)
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ANTICIPATED RESULTS

At the conclusion of my capstone project I will have compiled; 1) A brief history of the Random Hacks of Kindness organization, 2) A narrative account of the Rochester Hackathon, including the organization and execution of the event, 3) A compilation of local press and media coverage from the event 4) A source code visualization showcasing the activity of participants in the event in a spectacular manner.

If successful, this visualization will be appealing to both technical and non-technical audiences. It will convey both the scope and extent of development that took place over the 24 hour event, easily understandable to both audiences. This visualization will inspire those who view it, and it will be posted online on video hosting website Youtube for maximum exposure and searchability.

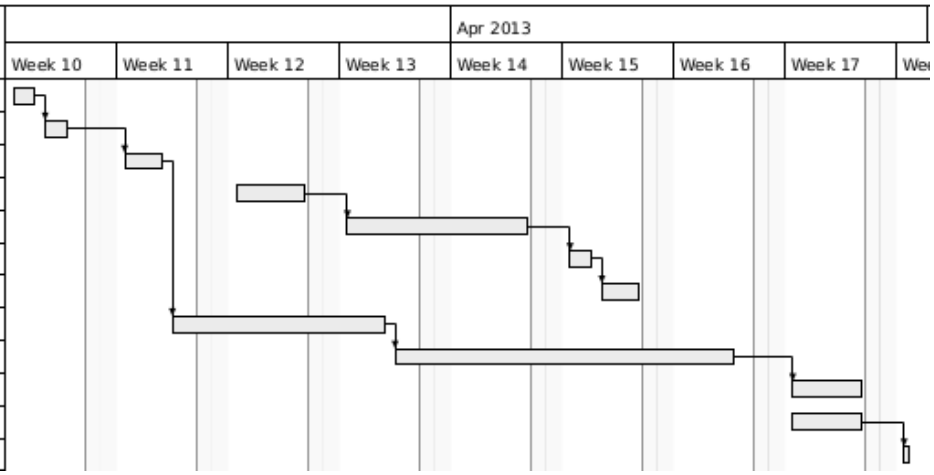
If very successful, this video will be used as a promotional tool to bring more developers to the event. If very very successful, the code and scripts written to generate and render the video will be used by RHoK members in the future, to show others and inspire more development on the projects featured in the video. The codebase itself could become a project or challenge featured as part of the RHoK events, and garner more contributors to use it to expose the extent of other humanitarian technical developments outside of RHoK Hackathons.

Ideally, this work will be accepted as a contribution to the Random Hacks of Kindness website, featured as a testimonial on the organization's blog. This capstone then will serve as a powerful storytelling tool that will increase the number of future participants, improving the quality of solutions developed during future events world-wide.

If unsuccessful, this visualization, narrative account, and presentation will still serve as a tool for promoting our own local Rochester Hackathons, and set expectations for other developers and organizers on campus in the future.

PLAN OF WORK AND TIMELINE

Name	Work
Research History of RHoK	2d
Compile Local Coverage	2d
Compile Brief History	3d
Locate Code Repositories	5d
Adapt Gource Script	10d
Compose Backdrop and Art	2d
Render Gource Video	3d
Compose Narrative Account	10d
Develop Draft Report	16d
Edit Draft Report	5d
Develop Presentation	5d
Defend Capstone	1d



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