

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 Report in partial fulfillment of a
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Table of Contents

Title Page	1	Conclusion
Table of Contents	2	Problem Recap 32
Abstract	3	Overall Summary 32
Problem Background	4	
Literature Review		Recommendations
Copyright Basics	7	How to Utilize 35
Licensing and Intellectual Property	8	What to Do Differently 36
Copyleft Licenses	8	Specific Course Preparation 38
Permissive Licenses	9	Showing the Story 40
Normative Behavior	10	Acknowledgments and Thank Yous 41
Motivation through Reputation	11	
Community Architecture: Streams and Stacks	12	References Cited 42
Knowledge Spillover and Positive Externalities	13	Appendices
Publicly Licensed Software as Public Good	14	Appendix A: License To RHOK 45
Project Description and Methodology		Appendix B: The Event Flyer 47
The Idea	16	Appendix C: Eventbrite.com Registration Page 48
The License	17	Appendix D: RIT Press Release 49
The Venue	17	Appendix E: Henrietta Post Online Article 50
The Acceptance	18	Appendix F: Radio Interview with Bob Smith WXXI 51
The Flyer	18	Appendix G: YNN News Clip 52
The Event Listing	19	Appendix H: YNN Online Article 53
The CapitolCamp Conference	20	Appendix I: RIT Reporter Online Article 54
The Press Release Draft	22	Appendix J: RIT Reporter Magazine Article 55
The Keynotes Confirm	23	Appendix K: 13WHAM Online Article 56
The Press Release Released	23	Appendix L: 13WHAM News Clip 57
The Swag	24	Appendix M: Democrat & Chronicle Newspaper Article 58
The Radio Interview	24	Appendix N: Venue Photos 59
The Keynotes Arrive	24	Appendix O: RHOK Event Planning Kit 62
The Day of	25	Appendix P: Multi-Source Scripts 96
Project Results		
The Count Down	29	
The Main Event	27	
The Press	27	
The Next Day	28	
The Presentations	29	

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 work 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 of which are 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.

Literature Review

Before discussing the capstone project and its outcomes, we must first frame the terminology, motivations, and challenges and benefits of Free/Open Source Software Development. Here we will review the myths around FOSS, the basics of copyright, categories of FOSS licenses, normative behavior, motivation, community architecture, and positive externality and benefit to the market.

Copyright Basics

Copyright in the United States protects "original works of authorship," such as literary, dramatic, musical, artistic and other works (United States Copyright Office, 2008). It grants authors these *Exclusive* rights to their original works:

- To Reproduce, or copy the works;
- To make derivatives, or modify the works;
- To distribute copies of the works to the public, by sale, transfer of ownership, rental, lease, or lending;

and in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audio visual works

- To perform the works publicly;
- To display the works publicly;

additionally in the case of sound recordings,

- to perform the work publicly by means of a digital audio transmission.

Licensing and Intellectual Property

(DeCausemaker, Source Code, p. 9-10)

Exclusivity may be the default state of these copyrights (even for unpublished works) but it is for the author to decide if, when, and how to *grant* these copyrights to others in the form of a license agreement. Authors can choose to license some or all of their rights to third-parties under conditions of the author's choosing .

The license under which copyrighted code is released is possibly **one of the most powerful** non-verbal cues a hacker can send to the development community. It is a statement of exactly what the original author permits others to do with their own original work, and any future conditions under which that work should be released. Regardless of how sloppily or elegantly crafted source code is, or how much effort a hacker puts into making a library useful or easy to use, the license decision frames all communication that occurs, and the relationship between each project's members. For the most part, Free/Open Source licenses fall under two categories; copyleft and permissive.

Copyleft Licenses

(Fontana et al., 2008)

“Copyleft” is a play on the word “copyright”. Whereas copyright law has traditionally been used to withhold permission to copy, modify or distribute software, some licenses instead use copyright law to require that such permissions be granted.

Copyleft licenses are conditional licenses. One of the conditions you must satisfy before distributing copylefted software is that any changes you make to that software be likewise released under the copylefted license. A copyleft license ensures that all modified versions of your project remain free in the same way. Such licenses are said to keep code “forever free”.

FOSS licenses can have stronger, weaker or no copyleft provisions, but they all share a

common goal: creation of a large pool of software that can be combined and built upon to create new works. Copyleft licenses require that those who take material from the common pool give something back as well.

Permissive Licenses

(Fontana et al., 2008)

There are many licenses commonly referred to as “BSD” or “BSD-style” licenses. Most of these licenses differ from each other in only minor ways, which is why they can be grouped together and described generally as “permissive, non-copyleft” licenses.

These licenses are permissive in that they place the bare minimum of restrictions on subsequent development and distribution. Using these licenses is as close to releasing into the public domain as FOSS licenses get ... The advantage of these and similar licenses (i.e. the ISC License) over more restrictive licenses like the GPL is that they are very tolerant of redistribution under a variety of licensing conditions, including under proprietary licenses. For some projects, having their code included in proprietary software is desirable. Many developers believe this may facilitate wide and quick adoption of the technology by both proprietary software distributors and FOSS projects.

The difference between copyleft and permissive licensing makes **all** the difference on how source code will be used or adopted. Going back to the Stack illustration above, not only does software depend on a network of technical dependencies, but a network of licensing dependencies guide how those can legally be used and combined. If a hacker wants to incorporate a library into their project, the license that that author chooses must be compatible with the license of other libraries included in the project. This licensing decision can preclude certain software, or entire categories of software, from being a part of a project. As an upstream developer, the licensing decision will ultimately impact any adoption or inclusion of their project in future projects. It signals to downstream developers what the attitudes of the project are toward commercial development, or if the project cares about strengthening the ecosystem of Free/Open Source software.

Most projects that are serious about development will choose from a buffet of licenses listed by either the Free Software Foundation, or the Open Source Initiative. These licenses have been proven to be legally enforceable, and contain standard language that has been honed over years of development.

In the case of Random Hacks of Kindness, and most humanitarian hackathons like it, all solutions are **required** to be released under Free/Open licenses. The purpose of this practice is lower the legal barrier of entry, just as much as the technical barrier of entry, to reusing (a pillar of The Open Source Way) and redeploying codebases.

Normative Behavior
(DeCausemaker, Source Code, p. 4)

There has been codified, a collection of normative behavioral guidelines for hackers who choose to participate in Open Source Software development. These guidelines were paraphrased and interpolated within a lecture at TEDxBuffalo entitled Open Data, Open Government, and The Open Source Way. (DeCausemaker, Source Code, p. 4)

"What is The Open Source Way? It is a philosophy. It is a mindset. It is a production process. It is a state of being, that maximizes the potential of collaborative community development. According to Opensource.com (2009), it has Five pillars (TED.com, 2011):

1. Open Exchange

We learn more from each other when information is open. ReUsing Information frees up our cognitive surplus to solve new problems, and not recreate the wheel.

2. Participation

When the barriers of entry are few, and the barriers are low, creation and innovation thrive.

3. Rapid Prototyping

Learn by doing. Release early, release often. Fail early, fail often, find the right answer faster.

4. Meritocracy

In a free marketplace of ideas, everyone has access to the same information. Successful work determines which ideas rise and gather momentum from the community.

5. Community

The more people who look at a problem, the faster and more likely we are to solve it.

Motivation through Reputation

(DeCausemaker, Source Code, p. 5)

These principles help to explain the benefits of this ecosystem to all participants, but there have been proposed other individual incentives that drive hackers to contribute to such projects. Steven Weber in *The Success of Open Source* (2004) provides a critical analysis of a theory of "Reputonics," originated by Lerner and Tirole in their work for the National Bureau of Economic Recovery entitled *The Simple Economics of Open Source* (2000):

"The incentive to prove your worth shifts to the side of the developer. As is true of many technical and artistic disciplines, the quality of a programmer's mind and work is not easy for others to judge in standardized metrics. To know what is really good code and thus to assess the talent of a particular programmer takes a reasonable investment of time. The best programmers, then, have a clear incentive to reduce the energy that it takes for others to see and understand just how good they are. Hence comes the importance of signaling. The programmer participates in an open source project as a demonstrative act to show the quality of her work. Reputation within a well-informed and self-critical community becomes the most efficient proxy measure for that quality."

This signaling establishes between speakers within the hacker community their proficiency in the state of the art. It is what helps to establish hierarchy within a decentralized production system, and influences the behavior of subsequent contributors and potential contributors moving to or from competing projects.

Community Architecture: Streams and Stacks

(DeCausemaker, Source Code, p. 5)

A useful characterization of the FOSS ecosystem is that of a river. Code bases that a project depends on are *upstream* from that project; changes made upstream flow down the river and impact anyone else relying on their code. Users, developers, or other dependents of a code base are *downstream*; changes made flow down the river to the consumers of that code.

This dependency structure can be thought of as a Stack, with core upstream libraries forming the base of the stack, and downstream libraries piling on top of the base in order of dependence. This structure is a result of how software is built, and does not always take the form of a simple hierarchy. Interactions between these code bases occurs through iterative development, or incremental changes and additions that accumulate over time. Sometimes changes happen on a scheduled release cycle, sometimes intermittently or bursts, or sometimes not at all, with one library fading into obsolescence, being replaced by a competing libraries with more active contributors.

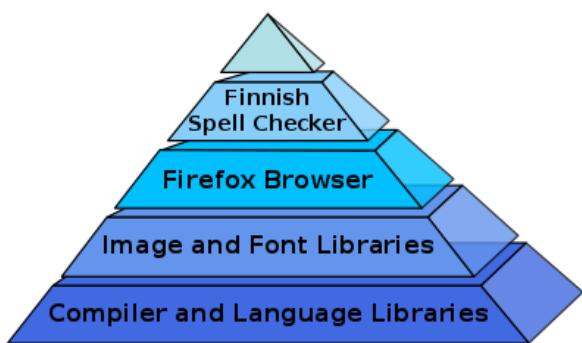
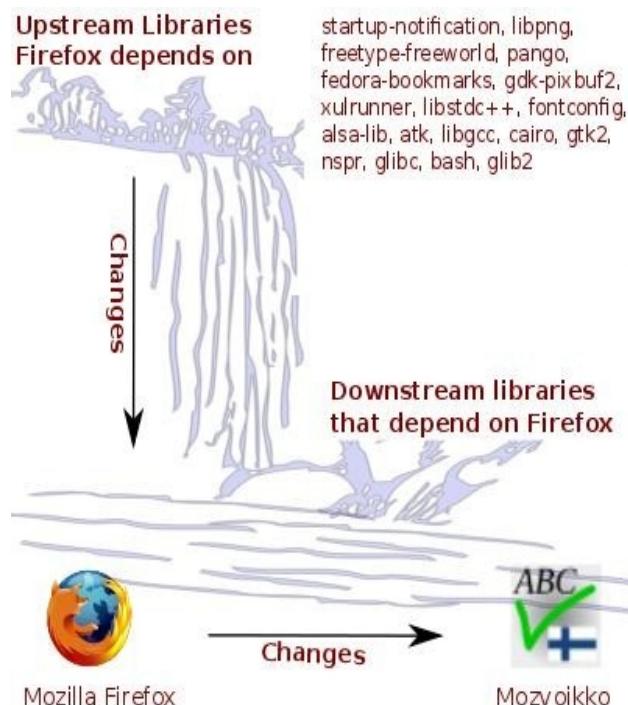


Illustration 1: The lowest level upstream libraries form the base of the stack. The farther a library is downstream, the higher it is on the stack. In order for images and fonts to be rendered in the Firefox browser, compilers and language libraries must be installed. The Finnish spell checker, Mozvoikko, only works within Firefox, so it sits highest on the stack.

Illustration 2: Picture a waterfall and a river. Changes to core libraries upstream from Firefox, impact Firefox, thereby impacting projects that depend on Firefox downstream.



Knowledge Spillover and Positive Externalities

(DeCausemaker, Should Government, p. 21)

In their work for the Center for American Progress entitled *An Open Source Tax Credit: Proposal and Economic Analysis* Irons and Malamud make the case for the Positive Externalities that are begotten from Open Source development, and the knowledge spillover that occurs when code is made publicly available (Irons and Malamud, 2006, p. 5-7):

"The textbook example of an externality is the case of pollution. Consider a company that creates a product for its customers, but that creates pollution in the process. If the pollution negatively impacts those living around the factories, then the product is said to create negative externalities. Pollution abating policy might then increase over-all economic welfare.

Positive externalities can also arise in economic transactions. Such is the case when a bee-keeper's hive helps to pollinate a neighboring farmer's field. Externalities typically lead to a

situation in which the costs (or benefits) of an economic transaction to individuals differ from the broader social costs (or benefits) to the broader community...

Consider now the case of open source software. An individual developer can, if she chooses, keep her software code private, and charge for that product. In that case the private gains would accumulate (in some proportion) to the developer and purchaser (the end users). There are not necessarily any positive externalities in this transaction.

Suppose the code were, instead, open source. The benefits from that piece of software would then accumulate to (a greater number of) end users AND it would also benefit other developers. Users would also have a potential of even greater gain with open source, since they would have the ability to refine or enhance the product themselves.

Importantly, other developers benefit from the open-source code by

1. learning from the code,
2. incorporating their product or components into their work, and/or
3. by expanding/modifying the original code.

Open source development can thus be thought of as disseminating knowledge and ideas in addition to providing a specific product to market. And as before, these benefits accumulate to those who are not part of the initial transaction.

The positive spillover of knowledge to a broader community creates an opportunity for public policy to improve upon the private outcome...

Publicly Licensed Software as Public Good

(DeCausemaker, Should Government, p. 22)

This positive spillover of knowledge to the broader community can lead to massive positive network effects, due to the extended area-of-effect provided by the internet. By offering affordable software, and free access to information, this can lead to positive impacts for both 1st and 2nd degree parties, but more so for the 3rd and 4th degree. Education has been recognized as a public good that all of society has an interest in promoting, even if they are not the ones directly in school. It helps to raise the standard of living for everyone, when more people are educated. This is why everyone helps pay school taxes (even those without children) and educational institutions can be receive a 501(c)3 designation, and be granted a tax-exempt status. Open source software provides applied vocational education opportunities

that supplement the public education system, and help to bridge the digital divide. Providing affordable software increases the digital standard of living for everyone, and allowing everyone to contribute to the FOSS ecosystem allows us, as a global society, to maintain and improve that standard on an ongoing basis.

Project Description and Methodology

The Idea (10/10/12)

Professor Jacobs, Director of the RIT Lab for Technological Literacy, and Capstone Project Consultant, received an email out of the blue. Ihudiya Ogburu, a former student of the Humanitarian Free/Open Source Software Development course (at the time, just an Honor's Seminar Course) reached out to myself, Prof. Jacobs, and Jim Myers, Provost of International Studies with a simple and earnest question:

Hi Remy and James,

Would either you be interested or know of students who would be interested in hosting the Peace Corps Innovation Challenge at RIT?

Here is the website link: <http://www.peacecorpsinnovationchallenge.org/>

Let me know, and thank you Prof. Jacobs for your fast response.

*Cheers,
Ihudiya Finda Ogburu*

Prof. Jacobs immediately replied, saying that he would have me look into it. As I was researching the challenge a couple days later, I found the FAQ, or Frequently Asked Questions Page, and it mentioned that the PeaceCorps Innovation Challenge was participating in a program called Random Hacks of Kindness. I followed the link, and immediately recognized the initiative. I was a huge fan of their “finite state cellular automata” style theme on their website, and had even pointed our student designers to their site for inspiration in the past. Their hackathon had been on my radar for years, but each year I only heard about it *after* the application period had closed, and the sites were already accepted. Not this year.

The License (10/16/12)

From the FAQ, I followed the link to the “License to RHoK” application (Appendix: A), which was a series of pointed questions about my familiarity with their organization, my experience as an event organizer, prospective sponsors, partners, and venues, and why I wanted to hold the event. This type of event is at the core of our program, leveraging Free/Open technology to give students real-world development experiences, while having humanitarian impact. I indicated as such in the application and held my breath for the “10 Business Days” the submission page indicated it would take for me to receive my “license.”

The Venue (10/19/12)

In my excitement for filling out the application, I had checked to be sure the space was available on the events calendar, but neglected to actually book the venue I was proposing as the site for our event. I sent an email to the Innovation Center Operations Manager Clare Lagiewski, asking her to book the event officially. She replied with news of the first challenge of organizing the event. In the handful of days since I checked the Calendar Initially, the Office of Co-op and Career Services had booked the Innovation Center **all day** on the Saturday RhoK was to begin for the Google Puzzle Challenge. After re-reading the contest website, I discovered a loop-hole of sorts; since the event was a global event, with hackathons taking place across many time-zones, it did not matter what the start and end times were, just that the event be at least 24 hours long. I replied to Clare, telling her to book the venue immediately after Google's event, which ended up being at 9pm after accounting for clean-

up/tear-down time.

The Acceptance (10/29/12, 12:21pm)

Dear Remy,

I am pleased to inform you that your application to RHoK has been approved. I have created you a RHoK.org landing page here: <http://www.rhok.org/event/rochester-ny-usa>. I have also created an Eventbrite registration page for you. You should be getting admin access instructions shortly. I will get your logo as soon as it is created. Please let me know if you have any questions.

Best,
Thea Aldrich
RHoK Community Support Manager

I was thrilled when my first of many emails from Thea Aldrich, RhoK Community Support Manager showed up in my inbox. This was a highly visible international event in the world centered around Humanitarian Software Development, and my application was accepted! I knew our students and community members had the potential to tackle many of the problems listed on the PeaceCorps Innovation Challenge page, and now we'd have the chance to actually do it! Soon after the acceptance email, another arrived that shared with me the official Random Hacks of Kindness Event Planning Kit which would help shape and guide our local event, and the events happening world-wide. (See Appendix O, included at end of report).

The Flyer (11/02/12)

It always begins with the flyer. Each event we run has a promotional flyer that must be designed. I ascribe to the “5 W’s” rule—Who, What, Where, When, Why. Nowadays, our lab employs a part-time designer and artist, but in those days, flyer design fell under my purview

as the sole employee of our program. I was more than happy to take on the task. At the time I was enrolled in a Digital Design Course as part of my Communications and Media technology Concentration, and was excited to put my improved skills to the test. Using Inkscape, “An Open Source vector graphics editor, with capabilities similar to Illustrator, CorelDraw, or Xara X, using the W3C standard Scalable Vector Graphics (SVG) file format” (<http://inkscape.org>, 2013), I was able to quickly cobble together a flyer (Appendix: B) with all the requisite information, sponsor logos, and even include a QR Code. QR, or Quick Response Codes, are “a two dimensional (2-D) matrix code that belongs to a larger set of machine-readable codes, all of which are often referred to as barcodes, regardless of whether they are made up of bars, squares or other-shaped elements” (Brostoff, 2011). QR Codes can contain alpha-numeric characters, as well as Unicode characters for non-English languages. In this case, the code contained the URL for the event information page on our website that when scanned by a barcode reader common to most smartphone and tablet devices, directed prospective attendees where to register on the printed flyer. On the particular Linux distribution I use on my laptop, Fedora, there is packaged and available a FOSS licensed command-line tool qrencode that can easily generate such codes. By using inkscape, and qrencode, and the Firefox web browser, I was able to download all the sponsor logos, create the QR Code, and design the flyer needed for the event.

The Event Listing (11/03/12)

Random Hacks of Kindness utilizes Eventbrite.com for both informational and registration purposes for their hackathon events. Each local site gets an Eventbrite page which organizers can edit, and the Community Managers can access to monitor the progress

and reach of each local event (Appendix C). The website allows organizers to do things like sell and distribute tickets, email registered participants, email organizers when new registrations occur, list and link to sponsors, print out attendance lists, and even an app to check-in and attendees. The site had many more features available that were not needed for our local event, in addition to those listed above. Eventbrite.com is a site that continues to be an resource for our lab, and we've used it successfully for a number of events since RHoK. To create the event page, I had the option to use a Rich Text Editor, which is a WYSIWIG ("What You See Is What You Get") editor, or to edit the web page source directly. As an avid blogger and novice web developer, I don't shy away from editing the source, in fact, I prefer it, and even write most of my academic papers in HTML. I used the vim text-editor to write HTML directly, and then upload the code to the site directly to create the page itself. I was able to embed our newly created flyer within the HTML, directly linking to the flyer previously uploaded to our lab's website. By using the website OpenStreetMap.org (The Open Source version of Google or Bing Maps) I was able to export an image map of campus. Then using inkscape, edit and add an overlay to highlight both the venue and parking to complete the event listing.

The CapitolCamp Conference (11/15/2012 to 11/16/2012)

CapitolCamp is an Unconference and Developer Summit held in Albany, NY. It draws not only your garden-variety-hackers, but academics, journalists, and above all, public servants. It was a first of its kind event in 2008, the only unconference to be held in a Legislative Building. I have had the privilege of attending and speaking at all of them, and this past year was particularly poignant. Taking place just a short-while after Hurricane Sandy

ravaged much of the East Coast, including New York City, emergency management and disaster relief were still fresh in many of the attendee's minds. In fact, at the time, there were still thousands of New Yorkers still without basic services like electricity and other utilities. During the developer summit, there were five projects under active development, with hackers from the Senate, the CIO-OFT office, LIPA, the Governor's office, and other agencies and constituencies.

During the project pitch session, we were told an interesting story about how the Governor's website (Governor.ny.gov, 2012) was serving as a clearing-house for storm related information and resources. One webpage was being hand-curated with information from all different departments and agencies, ranging from warming shelters and food banks, to outage information, Red Cross donation information, and much much more. Employees were working around the clock to help victims, and were at capacity doing so. After gathering about two weeks or so of website traffic and analytics data, they had come to an interesting conclusion. Most people who were visiting the storm resources page were doing so on a mobile device. This was consistent with the conditions caused by the storm; many citizens were still without power, let alone internet, so desktops were difficult, if not impossible, to use. Smartphones and other mobile devices were the primary tools used by folks looking for relief information, but the Governor's Storm Resources webpage was not optimized for mobile devices. This was the issue that folks at the hackathon were looking to address, and a handful of attendees, including myself and one of our lab's students, answered the call.

Dan Pozzie from the NYS Senate.gov development team took the lead, as he had both Drupal and mobile development experience. Working with Ginger Gericitano and Meredith Case of the CIO's office, we were able to mostly piece together the flow of information between agencies, and the current work-flow for updating the site. Numerous others stopped

by to contribute their input, but unfortunately I was not able to record all of their names and emails. By the end of the day, we had created some **very basic** initial components needed to complete the task; a data aggregation back-end that was screen-scraping information from other state and local agencies and NGO websites, a Drupal environment that was based off of the technology currently deployed by the Senate and others within the state, and a very rudimentary jQuery mobile user interface.

The team agreed that this was a good start, but that much more would need to be done. From the beginning, I knew that if we made any kind of demonstrable progress that could be built upon, that we would dedicate resources at the RHoK Rochester hackathon to continuing development. When the summit was over, the others agreed, and because the project was released under the GNU Public License (GPL), we would be able to continue development.

Even though no government employees from the original team were able to physically attend the event, Ginger from the ITS office joined us virtually via Internet Relay Chat (IRC) during the hackathon.

The Press Release Draft (11/19/12)

Upon returning to RIT, with an improved resolve from witnessing the direct impact of our efforts, and the efforts of the other four projects at CapitolCamp, I began drafting the press release for our hackathon (Appendix D). In it we provided all the same information from the flyer, with some additional information about the Hurricane-Sandy-Relief mobile site. Prof. Jacobs and myself sent back and forth edits via email, and sought out other faculty and staff,

such as Professor Andrea Hickerson, to get their input and professional opinion.

The Keynotes Confirm (11/26/12)

During the press release editing process, we received an update from Thea that one of the Core Organizers from RHoK would be joining us in Rochester. Sean Herron, member of the NASA Open Government Team had agreed to join us. He was a Syracuse University Alumni, no stranger to Upstate New York, and would visit his Alma Mater on the way to our event.

Professor Antonio Mondragon, organizer of the 3rd annual ARM Developer Day and alumni of the RIT Professor's Open Source Summer Experience (POSSE) program, reached out to us at about the same time, and asked for our help to organize a hackathon for his on-campus conference, focusing on Open Hardware. We told him that we'd be happy to piggy-back and combine the events, as they had one day of overlap. He informed us that Rob Bishop of the Raspberry Pi foundation was going to be in attendance, and that he was planning to hack with us on Saturday. We offered Rob a chance to be a keynote speaker, and he accepted. The program was really starting to come together, and we had two more items to add to the press release.

The Press Release Released (11/27/12)

Through working with Scott Bureau and Kelly Sorenson of RIT University News, we created a final draft of the press release that made the front page of RIT.edu. The release was then widely distributed to news and media outlets around the region, and local news outlets

stated to carry the story (Appendix E), and we started to get our first big boosts in registration that same day.

The Swag (11/27/12)

No hacker event is complete without swag (colloquially “Stuff We All Get”), which are freebies and give-aways for registered participants. Thea was again in my inbox, and this time, asking how many attendees we were expecting, so she could send our site official RHoK tshirts. We ordered 60, and I asked for a couple “extra-larger” sizes for the more voluminous hackers (such as myself) who had already registered.

The Radio Interview (11/28/12)

Bob Smith, Radio Personality from Talk1370AM on WXXI agreed to have myself and Professor Jacobs on as guests for his one hour show (Appendix F). This was my first live radio appearance, and an experience I will not soon forget. I attended live at the station in downtown Rochester, and Professor Jacobs called in. We took questions, promoted the hackathon, and informed the community about the activities of our lab and the benefits of FOSS to educational outcomes, and real-world humanitarian development. We saw another surge in registration later that same day.

The Keynotes Arrive (11/30/12)

Much of the day that Friday before the hackathon was spent showing Rob Bishop

around the Golisano Building and the Innovation Center, introducing him to our facilities and our people at RIT. I even got to attend one of the hands-on Raspberry Pi workshops, getting my first opportunity to experiment with the hardware that would play a central role in our upcoming hackathon. After the day's workshops were completed, myself and four students tore down the 30 workstations in the lab, and carted all of the hardware over to the FOSSBox, where it would stay until next day.

Later that night, myself and a colleague of mine, Ralph Bean (formerly of RIT Research Computing, recently minted Software Engineer at Red hat) carpooled over to the Hotel where Sean Herron would be staying for the weekend. The three of us went out to dinner, and discussed a plethora of NASA projects and initiatives that were happening, as well as Sean's personal connection to the PeaceCorps innovation challenge through his sweetheart who was at the time on a tour of duty. We discussed all types of challenges that NASA faced, the gargantuan amounts of data that beamed down from each of their missions every day, and plotted out what the schedule for the next day would look like. It was my first time meeting Sean, and I was inspired by the discovery that NASA's Open Government Team had core members who were as young (or younger) than I was, doing real work, leading social media and web development strategy for the agency. We spent a handful of hours plotting and conversing, before deciding that it would be best to rest while we could—we were, after all, about to embark on an over-24-hour hackathon.

The Day of (12/01/2012)

Saturday was spent showing Rob and Sean around campus, checking out the Google Puzzle Challenge, and a brief visit to the Microsoft Imagine Cup in the IGM Labs. After

watching the results of the Challenge, we had a chance to catch up with the Google team, who generously donated their left-over swag from the puzzle challenge to our hackathon. After helping pack up, we did a trash sweep, and awaited the arrival of our student volunteers. Powerstrips were laid out. Raspberry Pi workstations were assembled (four of them to be exact). The swag table was laden with stickers, keychains, and other goodies. The sign-in sheet was placed. The mic and speakers were checked. The whiteboard signs scrawled with registration and event information. The 4 projector screens were populated with a twitter feed, IRC back-channel, text to match the whiteboard instructions, and our Turntable.fm music room. The key screen though, was a Google Doc containing all of the PeaceCorps Innovation Challenges we had identified that were considered “low hanging fruit,” or could be reasonably accomplished over the 24 hour event. The stage was set, and now all to do was wait for the players to arrive.

Project Results

The Main Event (12/01/2012, 9:00pm)

And arrive they did. Mostly RIT Students at first, then the folks from StormFrog, one of the event sponsors, who in the end would lead up the largest, most active team of hackers spearheading the Hurricane-Sandy-Relief mobile app development. At around 9:30pm or so, we double-checked that everyone was signed in, and kicked things off with Rob Bishop. Sean Herron then got up to give his keynote to a crowd of around 45 hackers, speaking on many of the things we had discussed the prior evening. After keynotes, we gave the audience a chance to talk amongst each other, gather their teams, and then report back to the group what challenges they would be taking on. Eight different project teams emerged, some taking on PeaceCorps challenges, some helping with Sandy Relief, some engaging in civic hackery at the local level, and other brandishing Raspberry Pi's and soldering irons. Once teams had formed, and people started to get into the groove, pizza arrived (along with plenty of caffeinated beverages) and people fueled up for the long night ahead.

The Press (12/01/12, 10:00pm)

Somewhere around 10pm or so, camera crews began to show up. YNN was the first, and they did a quick spot that we were told would show on the 11 o'clock news. Sure enough, I got a link via email from their correspondents later that night, and I was able to put the video up on the big screen for all the attendees to see (Appendix G, H).

Photographers and student journalists from the RIT Reporter Magazine showed up at

about the same time, taking pictures of the event, and interviewing attendees (Appendix I, J).

Their presence was felt by the attendees at the event, providing a sense of gravity and purpose to the “norm” or “business as usual” of writing code to solve problems.

The attendees continued on through the night, slowly the crowd of 45 thinning to a skeleton crew of about 20 or so die-hard hackers around 3:00am. At around 6:00am, I decided to turn in for the night and take a quick nap to recharge my batteries for the next day. Using an air mattress, and some felt table cloths, I set up a makeshift bed.

The Next Day (12/02/12, 9:00am)

The next morning I awoke, splashed some water on my face in the restroom, and returned to the fray. Professor Jacobs arrived with breakfast from Bruegger's Bagels; juice, bagels, muffins, cream cheese, fruit, and large boxes of coffee. Within about 15 minutes of returning finishing my first cup of coffee and a bagel, our second camera crew arrived, this time from WHAM13 (Appendix K, L). They took footage of the aftermath of the evening; pizza boxes and soda bottles strewn about the room, and a steadily growing crowd of hackers returning for their second shift, to join the stalwart and groggy folks who worked through the night.

By 11:00am or so, Justin Murphy, a reporter from the Democrat and Chronicle arrived and did in depth interviews with myself, and some of the project teams around the room. Scrawling notes on a Steno pad, he made his way around the room over the course of an hour or so, and informed us that the article would be online that evening, and in print in Monday's newspaper (Appendix M).

The Count Down (12/02/12, 2:00pm)

Once lunch arrived, most of the folks who had left the day before had returned, and the venue was back at capacity. Most of the folks who had been working through the night were targeting lunch as the 'end' of their double day, and wanted to polish off their work, so they could take a nap before the presentations later that evening. Lunch was an opportunity to rally the wagons, and get folks back on the same page. Many folks got up from their computers and walked around to check out the work that the other teams were getting done, and the software (and hardware) projects that had been built over the night. With everyone no longer glued to their screens, I was able to address the audience, set the expectations for the remainder of the day, and lay out the presentation and submission process. Everyone was now going from a "lets crank like mad" mindset, to 'let's polish off what we've got so we can show others what we've done." There was a renewed focus on longevity, sustainability, and maintainability; making projects available on open code forges, and preparing to hand off their work to the NGOs and Agency "clients" who had posted the challenges listed.

The Presentations (12/02/12, 6pm)

Each team's name was added a whiteboard next to the podium, and they were given 5-10 minutes to show off what they had been working on for the last 24 hours. This list of project presenters went as follows:

1. RadioBird

Description: A project using a commodity radio antenna hooked up to a Raspberry Pi that creates a Software defined radio. Can be used to tap into a number of frequencies, including transmissions from NASA Satellites

Source Code: <https://github.com/skykooler/radiobird>

2. Outages

Description: A live map of power outages in the North Eastern US, based on data feeds from National Grid and other Power Companies.

Source Code: <https://github.com/gregjurman/outages>

3. Peacestagram

Description: A webapp that shows a gallery of all the instatgram photos of PeaceCorps volunteers around the world, by searching for pictures tagged with terms like "PeaceCorps," or the names of Host Countries.

Source Code: <https://github.com/seanherron/peacestagram>

4. Monroe Minutes

Description: Tools to scrape websites within Monroe County and pull meeting minutes and other important documents from various village, town, city, and county websites, and convert them to machine-readable text. These are then indexed using a histogram method with keyword rejection via a black list of common words to exclude from results.

Source Code: <https://github.com/thequbit/monroeminutes>

5. RhoK-Media

Description: A repository of art and design assets such as wallpapers, badges, and powerpoint templates, based on the Random Hacks of Kindness logos and color pallette.

Source Code: <https://github.com/JennX/RHoK-Media>

6. PNC Notify

Description: A project to notify expecting mothers with health pre-natal care information during their pregnancy over SMS.

Source Code (Deleted): https://github.com/adamhayes/pnc_notify

7. SMS-to-Spreadsheet

Description: web application to allow users to send SMS messages to a designated phone number, and the contents of the message will be parsed and used to update a

spreadsheet.

Source Code: https://github.com/kaldrenon/sms_to_spreadsheet

8. Hurricane Sandy Relief

Description: A mobile storm resources site to accompany <http://governor.ny.gov/storm-resources> that will; 1) aggregate all of the disparate data into one comprehensive data source, and 2) provide a mobile view of the information from the Governor's website, using [Drupal](#) as the underlying content management system

Source Code: <https://github.com/stormfrog/hurricane-sandy-relief>

Conclusion and Recommendations

Problem Recap

Thousands of volunteers who answer the call to service each year, though motivated, do not possess the requisite technical skills to build their own solutions. Aid organizations must prioritize their budgets to meet physical needs first. Technology solutions are often prohibitively expensive, and problematic to fund due to intellectual property issues. Technical professionals are in high demand, and are often drawn to high technology regions with high-salary, private sector jobs (not volunteer work) to repay the high-cost of education. Even with the efforts of Humanitarian hackers doing weekend or side projects, there are still many, many more problems than problem solvers.

Overall Summary

Our satellite event in Rochester drew over 50 participants over the course of the weekend, who worked on eight distinct projects, each attempting to solve, or get a bit closer to solving, both global and local problems.

Radiobird was a project started to utilize very inexpensive, very open hardware, to build a generalizable radio communication tool. The Raspberry Pi only costs \$35 dollars, and has most of the capacity and amenities of a modern computer. HDMI, stereo audio, the same type of processor that is shipped with many tablets and phones, and uses the same power adapter as the average cell phone. This is a computing platform ripe for empowering underserved communities here and abroad. The more tools we build for the Raspberry Pi computer, and the more publicity we build for the Raspberry Pi Foundation, the more we further the goal of bringing affordable technology and avenues to literacy, to those who could

benefit from it most.

Outages as a product provides an easy interface to difficult to find data, and aggregates it from many resources. Power outages not only affect citizens, but businesses, and governments alike. By improving the flow of information, we can improve the flow of aid and support to areas that need it most. As the tool is Open Source it can be repurposed (with some effort) to aggregate other kinds of data from other sources too. A tool for citizens, technicians, and emergency responders alike.

As has been said a number of times in this report already, there are more problems than problem solvers. Maybe someday we can close this gap entirely, but until then, we need to inspire as many people as possible to answer the call. Peacestagram is tapping into one of the most popular social networks used for mass visual communication. The old saying goes "A picture is worth a thousand words." Often it is more effective to **show** someone, rather than tell someone, how important it is get involved, or to **show** them how they can make a direct impact in the lives of others.

"This first step to solving a problem is recognizing that there is one." "Knowledge is power." "All politics are local." These phrases may sound somewhat cliche, but are all applicable to the goals of Monroe Minutes. We all have a civic duty as a citizen, but don't have the time or resources to be personally involved at the highest levels of policy, let alone the mundane and everyday. Monroe Minutes is helping to inform our local community, and help people tap into issues they care about, at home. This is important not just for us in our County, but helps to set an example and to build a working model that can be replicated in other local communities around the world. Monroe Minutes has been under active development since RHoK Rochester, and the site's creator has branched off into a number of other municipal datasets and information sources to deploy new websites and build more

tools. Tim Duffy is still creating, still releasing new code every day, and still improving his technical skills every time he adds a new feature to his growing repertoire of tools and sites. He is doing himself, and the Greater Rochester Community a great service.

The RHoK-Media repository is proof that you don't have to be a computer programmer to make an impact at a hackathon. Artists, designers, and other creative people need to know that their skills are also in high demand, and they too can make a big difference. Just as was said in the problem statement, aid organizations and non-profits (such as RHoK itself) must choose the practical over the technical, often times that means undervaluing the aesthetic. Jenn Kotler's artwork, backgrounds, and badges are available for future RHoK organizers and participants to use to promote their local events. Her efforts provide inspiration, while reducing perspiration for those who come after her.

SMS-to-Spreadsheet was one of the Darling projects of our event. Sean Herron, RHoK core organizer, personally reached out to Patrick Choquette, Special Assistant to the Director of Innovation at the PeaceCorps, after seeing Andrew and Caleb's App in action during their presentation. Patrick has been working with our students to stand up a test server to experiment with the app, and make it scalable, and possibly do some field testing in the near future. We are very excited to see where this goes from here. The challenge Patrick and Sean listed for the Innovation Challenge, that Andrew and Caleb's solution addressed, was very clear-cut, specific, and tackled a real-world problem experienced by volunteers in the field everyday. Patrick said that of the 8000 active volunteers in 76 countries, each has their own use case for an app like this, and this app has the variability to help **all** of them.

Recommendations

As someone who has organized or advised over 40 hackathons in the last four years, I cannot recommend social coding events highly enough. I am blessed to have the resources of a university like RIT backing me up when I host events at this kind of scale, but some of the most productive coding sessions I've ever had were with two or three dedicated people working together in a focused and purposed way. You don't have to give away tshirts and stickers, you don't have to have the fanciest catering, you don't have to have the latest-and-greatest computing devices—sure that all helps—but it is not necessary for making a difference. All you really need is careful planning to avoid calendar conflicts, whatever computing hardware you can get your hands on, internet access (and if you had to you could probably do without it), a purpose, and a willingness to share your work with the world. Iterative development in the FOSS world represents not just process, but progress! The more people you have working on a problem, the more likely you are to fail early and find the right answer faster.

How to Utilize This Work

The good news is, you do not need my permission, or anyone else's who worked on these solutions to start making a difference. All of the code and content developed during our event was released under a Free or Open license. This means that, by design, and on purpose, you already have permission to continue improving or leveraging this technology, so long as you are willing to give the same permission to others. If any of these projects sound interesting or important to you, or you have the willingness to learn, my job is to help you get involved. Many of the original authors of these projects are still around--and if they are not, we

still have ways we can reach them--to help you get started. Start by sending me an email, and we'll go from there.

What to do differently

I do not intend to paint this picture as entirely roseay. There were certainly things that I did not do as well as I would have hoped, and things that I would have liked to have accomplished, but did not have the time to do. Hurricane-sandy-relief, I felt, was the most promising local project. It had all of the right ingredients; government stakeholder buy-in, a real-world need, top-notch professional assistance, around-the-clock hacker cycles during the event, a solid technological foundation to start from, and all of the good intentions you could ask for. Sure, there were some development problems that we could point to, or so one of my students told me.

There were multiple copies of Drupal's core code nested within the repository that had to be cleared out and refactored during the hackathon (which was probably my fault as the least savvy programmer on the team in Albany.) Though it was a pain, the team still managed to overcome that obstacle. With inheriting an 'approved' codebase, there were many design decisions that were already made before we ever sat down to write a single line of code. We had lofty goals when we started work in Rochester, and we achieved many of them in the short amount of time that we had to work, but ultimately the mobile site was "just a prototype." It was very difficult for me, to know how hard everyone worked on it, to then have it never actually be deployed in production. This is no fault of the developers who worked so hard to make the concept a reality, or the government stakeholders who identified the need and asked for help, but likely my own for taking for granted the community relations that happen within the hacker community. In the FOSS community, most developers get to **choose** which

projects they will put their very precious time into, and do it on their own schedule.

The dynamic when dealing with public servants is very different. They have a bazillion other problems to deal with at any one time, and public service is all too often is a thankless craft. No matter how much you get done, there will always be more to do. There are miles of red-tape to get through just to get permission to start ***planning***, let alone work on, a new project. It is my duty as liaison and community organizer to help navigate those official channels, and go through the motions needed to collaborate with the largest and most complex bureaucracies in the country. I did not make that happen in time for our hackers, but above all, in time for those affected by the storm.

Don't get me wrong, it was not ,by any stretch of the imagination, a total loss. Much goodwill was exchanged between our developers in Rochester, and the Developers in the Capitol. The experience in Albany was eye-opening, and showed that even when there there isn't a (fast) Way, the Will is still there. Perhaps next time, rather than start an entirely new project, we can get permission to modify existing code to serve our purpose, rather than recreate the wheel (it is one of the pillars after all...) Next time, we'll be sure to start planning wayyy in advance, months before an actual event takes place if we want a .gov presence at our next hackathon. Even if the code we wrote can't help as many people now as if it were deployed two weeks after the storm, it can still help some of those people who are still affected, or those who could be. Like all Open code bases, it can be repurposed and generalized. Maybe we can deploy it eventually, to provide a mobile interface to other kinds of content, not just storm resources? The work that was done is still viable, and was by no means wasted, but we all wish we could do more.

Specific Course Preparation

Many of the methods used to make this event successful were based on effective written communication, and digital design. The initial “License to RHoK” application required an understanding of the audience reading the work, and how to properly represent the work we’ve already done as part of our program. Courses like Crafting the Message, with an explicit focus on conveying information in a succinct manner, certainly helped with crafting my answers to the questions asked.

Courses like Contexts and Trends with Prof. McQuade helped me to think about the ‘bigger picture’ of how the themes expressed in RHoK’s Mission applied to the work we were already doing. Being able to take the macro level concepts and connect them to the micro level of implementation and planning was crucial in showing that not only did we agree with the context in which RHoK was operating, but that we knew how to *apply* those concepts to motivate and involve others to share their vision.

Once our application was accepted, the core of the message used for promotion revolved around a digital document, a flyer. This document was created using tools and methods that were honed during my work in the Digital Design course with Prof. Cameron. In her course, we were creating flyers and brochures (among other assignments), the exact types of promotional material that needed to be created for this event. Creating these art assets in a scalable and reusable fashion, for use in many different mediums, was an important factor in being able to quickly turn around deliverables with tight deadlines, such as press releases.

Courses like Public Administration and Management with Prof. Cooper helped provide an understanding of public/private partnerships, and the challenges those efforts face.. When

the government stakeholders were unable to attend our hackathon in person, it wasn't because they weren't interested, it was just a consequence of doing business at the scale that a government does. Turning around a travel request in a few short weeks is difficult, let alone implementing a brand new piece of technology. I appreciated what involvement the ITS was able to have at our event, and I look forward to working together in the future.

Though it was after the RHoK hackathon when I took Graduate Science Technology Policy Seminar with Prof. Foltz, he assigned an entire book on the Challenger Decision, which gave me a much greater understanding of the organizational culture within NASA. This was a boon later, and made me feel much more personally connected to the agency that I would eventually work with to organize our next big humanitarian hackathon, the NASA International SpaceAppsChallenge. (Which would do well as the subject of an entire capstone report in and of itself, worthy of the same amount of attention paid here to RHoK.)

All of these courses carried **extensive** writing requirements, and prepared me well for the amount of writing that would need to be done under a deadline in order to pull off organizing an event like this one. Compared to the 60 plus pages I was accustomed to turning around in a week or two, the piddly 500 words needed for the press release was something I could almost handle in my sleep.

Bill Johnson's Community Economic Development course put students directly in the board room with community leaders making decisions with broad and far-reaching impact, who had to balance public input. Learning from the professionals about balancing interests and effective team building (and campaign building) helped to give both knowledge, and confidence in speaking with other doers and decision makers.

Showing the Story

In addition to this written account and literature review, as part of the report, I have created source control visualizations, using the Gource (Cauldwell, 2010), and MultiSource (Clark, 2012) libraries. These simulations provide a visual aid for understanding the scope and magnitude of development that occurs during RHoK and other events like it. Provided below is the procedure and source code (Appendix P) used to create these coding components of my capstone research.

The Process

1. Compile list of local projects worked on during event.
2. Work with Sean Herron to aggregate revision controlled RhoK projects.
3. Clone each repository, both local and international.
4. Clone the MultiSource library, and edit the existing configurations to work with RHoK repositories.
5. Use the log generation script to stitch together the development histories of each project into one comprehensive file.
6. Use a colorization and categorization script to parse the log, apply a color to each commit.
7. Use inkscape to adapt the art assets from the RhoK-Media project, to serve as the background image in the visualization.
8. Configure and test the ffmpeg pipeline for rendering the video.
9. Render the visualization, and save it in a playable format.

The list may seem simple enough, but involved **many** more hours for some of the

steps than was previously anticipated during the proposal phase of this capstone. Allowances needed to be made for human error in the project's own revision control, and to re-write portions of the colorization script.

This visualization, though not able to be included in a written form, will be demonstrated at the Capstone Presentation. Source code is available at <http://github.com/FOSSRIT/multigource-foss> in the 'rhok' branch of the repository. Rendered video will be available at <http://foss.rit.edu/rhok2012-multi-source>.

Acknowledgments and Thank Yous

All of the work I do is built and predicated upon the work and support of others. As a FOSS developer, I should even acknowledge the authors of the very software used to create this report, and the accompanying source code visualizations and presentations (<https://www.libreoffice.org/about-us/credits/>).

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Appendix A: License to RHoK Application

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- Q: *What do you know about RHoK? Which events have you attended?*
A: I've been following RHoK's work since 2008(ish), and have always been inspired. I have not actually attended any RHoK events in person.
- Q: *What drew you to RHoK?*
A: <http://www.peacecorpsinnovationchallenge.org/learn/>
- Our lab at RIT was approached by a current Peace Corps Member (who is one of our former students) who thought that this type of event would be interesting for our students. As we run at least 2 hackathons per quarter, it certainly was.
- Q: *What issues are you most passionate about?*
A: Our lab focuses on Free/Open Source Software and Open Web Technologies. Our research in the past has included subject areas like Humanitarian development, Educational Games, Open Data, Accessibility Technology, Open Courseware, Gamification, and Social Coding.
- Q: *Why are you interested in organizing a RHoK event?*
A: The Peace Corps Innovation Challenge provides a discrete list of problems that need tackling. After looking at the list, we are confident that our students can help solve a number of these problems in a single hackathon. Having a humanitarian focus, and solving real world problems are at the core of our lab's mission, and a big motivator for many civic-minded hackers here in our lab, and across campus.
- Q: *What experience do you have organizing "hack days" or other events?*
A: One of my duties as a Research Associate is to run at least 2 hackathons per quarter. I've organized and staffed at least 20 hackathons in the last 3 years, both for local communities, and upstream projects. Here is a decent example:
- <http://opensource.com/education/11/8/bridging-boxes-hacker-matchmaking-upstate-new-york-opensource-way>
- Q: *Do you have experience seeking sponsorships for events? In media or promotions? Please describe?*
A: Yes. I've helped to organize and locate sponsorship for events like Startup Weekend Rochester, Software Freedom Day, and other on and off campus conferences.
- Q: *List at least one website that will help us understand you better (e.g. Your blog, your company's website, research papers, biography, photos taken by you, ...)* *
A: **Campaigns:**
<http://foss.rit.edu>
<http://civx.us>

Code:
<http://github.com/FOSSRIT>

Storytelling:
<https://www.youtube.com/watch?v=YZ6ILsOIBgA>

<http://opensource.com/users/remyd>
<https://www.youtube.com/watch?v=08RqkYxoiLw>

- Q: *What do we need to know about you that we didn't ask?*
A: My 2011 TEDx Talk: <https://www.youtube.com/watch?v=fZxI2ZqSyrA>
- Q: *In which city and country would you like to host a RHoK event?*
A: Rochester, NY, USA
- Q: *Will you be planning the event on your own or with others? If you're working as part of a team, list the names and email addresses of the team you're working with?*
A: Stephen Jacobs, sj@mail.rit.edu
Ryan Brown, ryansb@csh.rit.edu
Nate Case, qalthos@gmail.com
James Myers, jamisr@rit.edu
- Q: *Do you have a venue in mind for the event? What contacts do you have with the venue? **
A: The RIT Center for Student Innovation is where we host all of our on-site hackathons. It can accommodate over 200 people, and meets all the venue requirements listed here:
<http://www.rhok.org/node/1577>
- Q: *Which speakers or subject-matter experts do you plan on inviting?*
A: RIT Professors and Faculty in both Computing and Policy Departments.
Local Hacker/Maker Space Representatives.
Linux and other Local User Group Organizers.
Possibly someone from Github (we just had a github rep at our last hackathon, so they may not be able to make it.)
Local Web/Mobile Development Shops in Town (such as StormFrog)
Current Red Hat Software Engineers.
Anyone from RHoK who would be willing to join us :)
- Q: *Do you have contact with the hacker community? with media? with possible sponsors?*
A: Please describe.
A: We've partnered with the following organizations in the past:

Hackers:

RIT Linux User Group
Computer Science House @ RIT
Rochester Python User Group
Rochester Tech Startups Meetup
Syracuse Student Sandbox (Student Business Incubator)
Coworking Rochester
InterlockROC
Hacks/Hackers ROC
BarcampROC
One Laptop Per Child (OLPC)

Media:

RIT University News
Rochester NPR Affiliate WXXI
YNN

Sponsors:

Github
Red Hat

Appendix B: The Event Flyer



Global Hackathon 2012: Rochester

over **5,500 innovators** in over **30 countries** making the world a better place by developing practical, open source technology solutions to the most complex challenges facing humanity.

Who: Coders. Designers. Content writers. Artists. Anyone who wants to help volunteers around the world solve real problems.

When: Saturday Dec 1, 9pm through Sunday Dec 2nd, 9pm

Where: RIT Center for Student Innovation
USC Student Innovation Hall, Bldg 87 - Room 1600

Bring: Laptops and/or other Devices

RSVP: <https://rhoktheroc2012.eventbrite.com/>



For more information visit
<https://innovationchallenge.peacecorps.gov>
or contact: remyd@civx.us

Global Sponsors:



redhat



Locally Supported By:

Appendix C: The Eventbrite.com Registration Page

RHoK Global December 2012: Rochester, NY, USA
Remy DeCaenmaker
Saturday, December 1, 2012 at 9:00 PM - Sunday, December 2, 2012 at 9:00 PM (EST)
Rochester, NY

Ticket Information

Name	Age	Gender
Attendee	Student	Male

Who's Going

One person is going. You can invite more people. Please tell us if you're going.

Event Details

RHoK Random Hacks of Kindness Hacking for Humanity

Global Hackathon 2012: Rochester

Over 500+ volunteers in over 50 countries making the world better through helping practical, open source technology solutions to critical challenges throughout the year.

Who: Coders, Designers, Content Writers, Artists, Anyone who wants to help volunteers around the world solve problems.

When: Saturday Dec 1, 2pm through Sunday Dec 2, 2pm

Where: RIT Center for Student Innovation
180 Student Innovation Hall, Bldg 100, Room 1000

Bring: Laptops and other devices

Sign: <https://rhookdecember2012.eventbrite.com/>


For more information visit
<https://hackathonchallenge.rhook.org/>
or contact remy@rhook.org

Global Sponsors:    
    


Look it up on map

Appendix D: The RIT Press Release

University NEWS

[contact us »](#)

April 19, 2013



66°



Stories by Category

Alumni

Arts & Imaging

Athletics

Business

Computing

Deaf Community

Engineering

Global

Liberal Arts

Science

Student Affairs

Sustainability

Colleges

RIT Media

RIT Resources

For Journalists

Hacking for Humanity: RIT Participates in Global Hack-a-thon to Affect Change

Event is part of Random Hacks of Kindness Global Hack-a-thon 2012

Nov. 27, 2012

by Kelly Sorensen

Follow RITNEWS on Twitter

Random Hacks of Kindness is an innovative twist on what are traditionally known as random acts of kindness. It's a global initiative made up of a community of more than 5,500 innovators in more than 30 countries developing open source technology to address some of the world's most complex issues.

Rochester Institute of Technology is participating and is a host site of the [Random Hacks of Kindness](#) Global Hack-a-thon from 9 p.m. Dec. 1 to 9 p.m. Dec. 2 in Student Innovation Hall in the University Services Center on the RIT campus. **The event is free and anyone is welcome to participate. To register, go to <https://rhoktheroc2012.eventbrite.com>.**

Random Hacks of Kindness has hosted four global events to date with more than 4,000 participants. Governments, emergency responders and citizens have used the solutions developed by this community.

RIT students and faculty will be among those working with federal, state and international organizations at this weekend's global event. Organizations such as the [Peace Corps](#) have identified issues their volunteers are facing in the field, posting a list of problems on its website to be addressed during the hack-a-thon. Participants also will have the opportunity to help New York residents affected by Hurricane Sandy with a mobile website for Gov. Andrew Cuomo's [storm resources page](#) that's currently in the prototype stage.

Sean Herron, a member of NASA's Open Government team, will be among those attending the event. He works to facilitate open source and open data projects throughout the agency and promotes the use of technology solutions to solve common problems. Herron previously worked in the Space Operations Office at NASA headquarters, where he contributed to public outreach projects involving the space shuttle and International Space Station. He is an avid Web developer and advocate for engaging the public in NASA's mission of exploration and discovery.

Also in attendance will be Rob Bishop, a developer with the Raspberry Pi Foundation, a charitable organization founded with the goal of promoting the study of computer science and other related topics.

Global sponsors of Random Hacks of Kindness include The World Bank, NASA, HP, Google, Microsoft and others. RIT's event is sponsored by The Office of the RIT Associate Provost of International Education and Global Programs, the Simone Center for Student Innovation and Entrepreneurship and the RIT Lab for Technological Literacy. The Lab for Technological Literacy is sponsored by StormFrog Inc. and Red Hat Inc.



Find other stories related to [newsrelease](#), [ritcenters](#), [computing](#), [global](#), [innovation](#), [research](#).

Appendix E: Henrietta Post Online Article

HenriettaPost.com

RIT to participate in Random Hacks of Kindness

By Staff reports

GateHouse News Service

Posted Nov 27, 2012 @ 02:47 PM

Rochester, N.Y. — Rochester Institute of Technology is participating and is a host site of the **Random Hacks of Kindness** Global Hack-a-thon from 9 p.m. Saturday, Dec. 1, to 9 p.m. Sunday, Dec. 2, in Student Innovation Hall in the University Services Center on the RIT campus.

The event is free and anyone is welcome to participate. To register, go to <https://rhoktheroc2012.eventbrite.com>.

Random Hacks of Kindness has hosted four global events to date with more than 4,000 participants. Governments, emergency responders and citizens have used the solutions developed by this community.

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Henrietta Post | Henrietta, NY 14467

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[RadarFrog Merchant Directory](#) | Internet Marketing by Propel Marketing | RadarFrog

Appendix F: Radio Interview with Bob Smith of WXXI

[http://foss.rit.edu/media/WXXI-AM%201370%20\(am-hi\)%20-%20.wav](http://foss.rit.edu/media/WXXI-AM%201370%20(am-hi)%20-%20.wav)



Appendix G: YNN News Clip

http://foss.rit.edu/media/13WHAM_RHoK.mp4



Appendix H: YNN Online Article

Rochester



YNN
YOUR NEWS NOW.

12/01/2012 11:12 PM

Hacks of Kindness Comes to Rochester

By: YNN Staff

Students at RIT took part in a global initiative with a twist, using technology to help solve problems through Hacking for Humanity.

The event is the fifth global event of Random Hacks of Kindness, an event that is made up of thousands of innovators in 30 countries.

RIT was a host site for the event where anyone could help develop solutions through technology that government, emergency responders and citizens can use to address common problems.

"A Hackathon is just coding and marathon so we're going to be going for 24 hours here in The Center for Student Innovation at RIT," said Remy DeCausemaker, Research Associate for RIT. "Community members and students, industry folks are all going to be working together to solve problems for volunteer and aid workers around the world."

Global sponsors of Random Hacks of Kindness include NASA, Google, Microsoft and others.

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Appendix I: RIT Reporter Online Article

REPORTERONLINE

What it Means to Be a Hacker

by David Utt

<http://www.reportermag.com/article/2926>

12.14.2012 | News

Sitting slightly in front of their computers programing, coding and designing the night and day away, the hackers gathered here are slowly changing the world with every passing hour. This is the Random Hacks of Kindness event (RHOK). The event is founded on concepts such as goodwill and charity. As Remy DeCausemaker, Research Associate for the CIS/IGM Lab for Technological Literacy and event coordinator of RHOK, says, "We're here to take back the hacker name as a creative problem solver." Here, they are hacking the world for a better tomorrow.



Max Hautaniemi

RHOK has one objective: to help create a collection of applications to help non-profits in 24 hours. These projects range from helping members of the Peace Corps with an SMS ledger system that tracks member's whereabouts, a Hurricane Sandy mobile app and language lesson generators. These apps were possible in such a short time span, as RIT students were not working alone. As part of a satellite event, it is scheduled as a single 24-hour block so the 20 or so students here in Rochester would work in tandem with the other RHOK events across the globe. This includes over 5,000 hackers in over 30 countries: Spain, Britain, Uganda, Nairobi, Brazil, India and Australia just to name a few. This allows RIT's small contingent to work in real-time with a multitude of hackers, with each adding their own innovations to these global problems.

Since the initial RHOK hackathon in San Francisco, the event has grown not only in the amount of participants but also in recognition by larger corporations and agencies such as Microsoft, Yahoo, Google, World Bank and NASA. One member of these organizations, Sean Herron, is the technology strategist for NASA's Open Government team, a division of NASA that works with the public to help find solutions to research and technology problems that impact human health and performance in short and long duration human spaceflight.

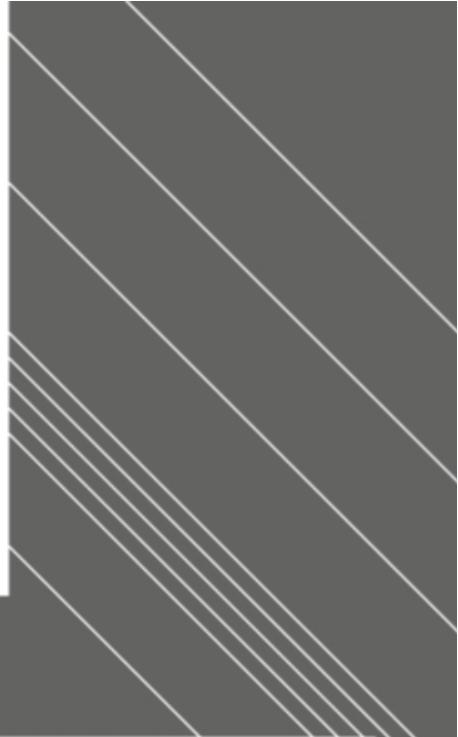
When asked about how a major government body such as NASA got involved with RHOK, Herron found that what students here are doing correlates greatly with what he and the other NASA employees are doing back in Washington D.C. In one way, the Apollo 13 explosion was the first case of a hackathon, "where a group of engineers, scientist and programmers from Houston with a limited amount of time had to solve a very important problem". Additionally the work NASA's Open Government team is trying to find solutions in problems of short and long term human spaceflight, many of those same issues are the same ones RHOK participants are trying to solve for third world countries.

Participants Andrew Fallows, a fifth year Software Engineering student, and Caleb Coffie, a second year Information Science and Forensics major, found the hackathon to have a much larger impact on themselves than they first assumed. While first going in with no real idea of what they could contribute, they noted they noted that whatever would come about, "It's not about making money or something to put on the resume, but about making a difference." Fallows and Coffie had developed the framework of a full working Peace Corps SMS ledger.

RHOK allows RIT students to take a break from worrying about career-oriented schedules and lifestyles and use the skills they've learned to make a real difference in the worldwide community. This is not just band of programmers and coders as the name might imply, but about being a creative problem solver. Those who are designers, illustrators, journalists and analysts all have the abilities to contribute to the cause. When January 18 arrives, RHOK will return for the American Greeting hackathon.

For more information on RHOK, check out <http://rhok.org>

Appendix J: RIT Reporter Magazine Article



WHAT IT MEANS TO BE A HACKER

by David Utt | photograph by Max Hautaniemi

Sitting slightly in front of their computers programming, coding and designing the night and day away, the hackers gathered here are slowly changing the world with every passing hour. This is the Random Hacks of Kindness event (RHoK). The event is founded on concepts such as goodwill and charity. As Remy DeCausemaker, Research Associate for the CIS/IGM Lab for Technological Literacy and event coordinator of RHoK, says, "We're here to take back the hacker name as a creative problem solver." Here, they are hacking the world for a better tomorrow.

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For more information on RHOK, check out <http://rhok.org>.

Appendix K: 13WHAM Online Article

Random Hacks Of Kindness At RIT Addressing Complex Issues



Published: 12/02 6:45 pm

Updated: 12/02 7:02 pm

Henrietta, N.Y. – Students at Rochester Institute of Technology took part in Random Hacks of Kindness Global Hack-a-thon this weekend. The mission of the event is to create open source technology to address some of the world's most complex issues.

The Hackathon goes from 9 p.m. Saturday to 9 p.m. Sunday.

RIT's Student Innovation Hall is a host site for the event. The Hackathon is a global initiative made up of more than 5,500 developers, designers and artists in more than 30 countries.

At RIT, students are working on projects to help volunteers working in developing countries.

"We have everything going on from open hardware that pulls down radio signals and satellite data from NASA, to a tool that takes an SMS text message that someone in the field can send, it will automatically update a spreadsheet for accounting purposes because a lot of people in developing countries don't have a constant connection to the internet like we do here. So that's a great way to keep projects up to date, to account, and to help keep donors up to date with what field activies are happening," said RIT Research Associate Remy Decausemaker.

Decausemaker also made clear that there are a few local ties to some of the projects that students are working on.

"We have a project where we're going through all of the Henrietta town meeting minutes to make them searchable by keyword, and to turn the PDFs into machine-readable text," he said. "We want to do that for other parts of Rochester as well."

Students are working with state, federal, and international organizations. Currently, a mobile website for Gov. Andrew Cuomo's storm resources page is in the prototype stage and needs improvements before it can be used.

Also in attendance at the event was Sean Herron, a member of NASA's Open Government team, and Rob Bishop, a developer with the Raspberry Pi Foundation, a charitable organization founded with the goal of promoting the study of computer science and other related topics.



seanherron

Checking out the Google Games hackathon at RIT. They had three simultaneous hack days today! #rhok <http://t.co/Hq7W3lb3>

Dec 1st, 2012 at 3:25pm

Random Hacks of Kindness has hosted four global events to date.

Appendix L: 13WHAM News Clip

http://foss.rit.edu/media/YNN_RHoK.mp4



Appendix M: Democrat & Chronicle Newspaper Article

'Hackathon' offers solutions for dilemmas

Justin Murphy

Staff writer

For a group of volunteers doing important international philanthropy, the programmers huddled around laptops at Rochester Institute of Technology Sunday were strangely silent.

There was some typing and an occasional whispered conversation in the inscrutable language of computer coding, but mostly the good work — projects that could benefit millions of people locally and around the world — was done in perfect silence.

Empty pizza boxes and two-liter bottles of Mountain Dew paid a messy test-



Coffie



DeCausemaker

ament to the programmers' 24 hours of work as part of Random Hacks of Kindness, a 6-year-old international programming event that had its first Rochester offshoot this year.

The concept is to apply computer ex-

perts' talents to specific, pressing problems that nonprofits and other public-minded organizations face. Participants select a dilemma and try to solve it in a highly caffeinated, non-stop, 24-hour 'hackathon.'

"The term 'hacker' has sort of a negative connotation these days," said Remy DeCausemaker, a research associate at RIT's Lab for Technological Literacy and one of the hackathon's organizers. "We're trying to reclaim the title. 'Hacker' just means creator, or problem solver, as far as we're concerned."

The Rochester hackers — about 50

See HACKERS, Page 4B

Hackers

Continued from Page 1B

students, professors and community members — tackled half a dozen problems in small groups. Some worked on Monroe Minutes, a project by Hacks/Hackers Rochester that indexes meeting minutes from local public meetings by topic in a searchable database. Others created a text message-based system whereby Peace Corps volunteers in remote locations can input accounting data to spreadsheets when they don't

have access to a computer, saving travel time.

The largest group was working on a mobile version of New York's disaster preparedness website. The state realized when Post-Tropical Storm Sandy hit that most people were accessing that information on their cellphones, where the site was more difficult to use.

Since 9 p.m. Saturday, two teams of programmers created a mobile version of the site that will be returned to the state free of charge. No lengthy and expensive bidding process, no months of waiting for a

finished product.

"This isn't just for the future," said Brian Moyer of StormFrog, a Victor mobile technology company. "There are still people downstate who don't have services."

The work done at RIT's hackathon will remain open-source, meaning other programmers can use it or adapt it to their own projects.

For second-year RIT student Caleb Coffie, the hackathon was his first. He worked on the text-messaging accounting system, which was mostly functional by 5 p.m.

"It was surprising to actually get something working out of this," he said. "It was nice to see you can help someone in the real world with programming."

JMURPHY7@DemocratandChronicle.com
Twitter.com/CitizenMurphy

Appendix N: Venue Photographs



Illustration 3: Keynote Address photographed from center of venue.



Illustration 4: Keynote photo, taken from behind swag table. Prof. Stephen Jacobs pictured top right.



Illustration 5: Sean Herron, Technical Lead of NASA's Open Government Team Addresses the Audience at RHoK Rochester



Illustration 6: RHoK Rochester Audience during Herron's Keynote. Shot from behind Raspberry Pi workstations at east end of venue.



Illustration 7: RHoK Rochester Audience, shot from other west end of venue.



Illustration 8: The swag table: a staple of social coding events everywhere. Stickers, buttons, keychains, postcards, and other literature available to attendees free of charge.

Appendix 0: RHoK Event Planning Kit



Event Planning Kit

Chapter 1: What is RHoK

Vision

Random Hacks of Kindness (RHoK) is an initiative that seeks to make the world a better place by building a community of innovation. A RHoK event brings together the best and brightest developers from around the world, who volunteer their time to solve real world problems. RHoK collaborates with subject matter experts (SMEs) to develop and define problems, which form the framework of a RHoK hackathon — a marathon weekend event of competitive coding, gathering software engineers together to develop software to respond to global challenges and crises.

Random Hacks of Kindness is a joint initiative of Google, Microsoft, Yahoo!, HP, NASA and the World Bank.



About RHoK

Random Hacks of Kindness (RHoK) organizes hackathons—marathon coding events with multiple global locations bringing together developers and technologists to create innovative solutions to real-world problems. At RHoK we work together with subject matter experts (SMEs) from organizations around the world to define and refine those problems into concrete problem definitions. At every RHoK Hackathon problem definitions are brought to the community and the developers work with SMEs to create innovative open source software solutions.

And just like in the marathon, there are winners and prizes up for grabs. Each RHoK event is structured as a fast-paced competition where developers have a set amount of time to solve the challenges they are given. At the end of the two-day event, a panel reviews each solution, and creators of the most promising solutions walk away with prizes: the chance to see their applications put to use on the ground and the right to call themselves “RHoKstars” for ever after.



Previous RHoK Events

RHoK #0: Proof of Concept

The very first RHoK event was held November 2009 in Mountain View, California and resulted in software solutions that were later implemented in Haiti and Chile following the earthquakes there in early 2010.

RHoK June 2010:

The first global RHoK hackathon, held in June 2010, featured a Main Stage in Washington D.C. and satellite locations in Australia, Indonesia, Kenya, Brazil and Chile. Hacks developed at RHoK #1 have been implemented to assess landslide risk in the Caribbean and crowd source bushfire information in Australia.

RHoK December 2010:

RHoK's second global hackathon took place in 21 locations around the globe and involved over 1500 participants. It resulted in more than 70 distinct software solutions to disaster risk challenges. RHoK #2 hacks have been piloted with fire departments in the Northeastern United States, used on the ground in Sendai, Japan to track relief supplies after the 2011 earthquake and have been picked up by the Kenyan Red Cross.

RHoK June 2011:

RHoK's third global hackathon expanded focus to include both disaster risk management and climate change adaptation. It involved approximately 1000 participants in 19 different cities and over 100 different software solutions. RHoK #3 hacks are already making an impact including a national shelter management for victims of winter storms in Colombia, a mobile application allowing Philadelphia residents to find out where they can use food stamps to purchase local fresh produce and SMS apps in Bangalore and Trento that links NGO feeding the hungry with restaurants donating leftover food.

RHoK December 2011:

The fourth global hackathon was the first to be open to any type of social good project. As a result there were hacks that ranged from building homeless shelter management systems, coordinating excess food distribution, and more. It involved over 1000 participants in 22 different cities.

Chapter 2: General Guidelines

Types of RHoK Events

Random Hacks of Kindness facilitates many types of events:

RHoK Global Events happen once or twice per year, simultaneously in many cities around the globe. They are typically 2 days events and feature a high level of coordination by the RHoK core partner team. These events are focused on all forms of hacking for social good.

RHoK Community Events are entirely community-planned RHoK events that can happen any time throughout the year. These can be focused on hacking for humanity along a particular theme (e.g. RHoK Water or RHoK Education), or in a particular geographic area (e.g. RHoK Kenya).

RHoK Reception: You may be interested in hosting a reception in connection with your RHoK hackathon. A RHoK reception can take place either the night before the hackathon, or at the close of the hackathon after awards are presented. The purpose of a reception is:

- To honor the RHoK hackers and subject matter experts who volunteered their time.
- To provide a venue for VIPs and representatives from your local sponsor organizations to learn more about RHoK, offer brief remarks and provide their support to the initiative.
- To tell the story of RHoK, globally and locally.

Other RHoK Events: Random Hacks of Kindness is more than just a set of hackathons, it is a year round process to develop and sustain projects that have a positive impact on humanities. Many local events also hold smaller events to support this effort.

This community event planning handbook will focus on planning a RHoK Global Event. However, many sections will be a helpful resource that can be used during the planning of a Community Event or RHoK Reception.

Applying for a License to RHoK

Anyone, anywhere in the world is eligible to apply to organize an event. To organize a RHoK event you will need to apply for a license. No one is permitted to use the RHoK brand in any way for an event without approval from the RHoK core team. Each license is good for a specific event on a specific date.

You can apply for a License to RHoK through the RHoK website at:
<http://www.rhok.org/license-to-rhok>

Some examples of the questions you will be asked on the application are:

- Why are you interested in organizing a RHoK event?
- What experience do you have organizing “hack days” or other events?
- Will you be planning the event on your own or with others?
- If you’re working as part of a team, list the names and email addresses of the team you’re working with.
- Which speakers or subject-matter experts do you plan on inviting?
- Do you have contact with the hacker community? With media? With possible sponsors? Please describe.

While we recommend you apply for your License to RhoK a few months in advance so you have plenty of time to find sponsors, secure a venue and advertise we will accept application for a License to RHoK up to two weeks before the event date.

If you have any questions about the application process, logistics of planning a RHoK event or would like to discuss planning a RHoK Community event on a date other than the semi annual Global RHoK events, please contact us at <http://www.rhok.org/contact>

RHoK Ground Rules

- You must raise your own event funding. Core partners do not provide financial support to events. You may approach local offices of RHoK partners to request in-kind support such as event space, but not for financial support.
- You may not use the event to make money for yourself, or to raise funds for other organizations or projects. The RHoK founders, sponsors and event organizers cannot use the events to make money. If there is money leftover after an event, it must be given to a non-profit charity or returned to the sponsors.
- Your event must focus on problems related to international development, humanitarian work or social good. RHoK events are not appropriate venues for solving problems that are related only to the political (domestic or foreign), financial, marketing or public engagement goals of any organization or governmental body.
- Please use the RHoK website to organize your event, it will give you all the tools you need. You are encouraged to blog about the event on your own site, but all communications should direct people to your event listing on the RHoK website. If you do use a third party site for your event. You must inform the RHoK core organizing team.
- You can't mislead the people by saying that Microsoft, Google, Yahoo!, HP, NASA or The World Bank are sponsoring your event or using their names and logos. You can't use the core partners logos anywhere at your event or on your communications, outside of approved text provided by the partners explicitly for your event. The RHoK core team partners sponsor the RHoK platform only.
- Sponsors: Almost anyone can sponsor a RHoK event, except organizations who deal in: weapons/ammunition, tobacco/cigarettes or adult-oriented products/services.
- You may only use approved event names and logos. Events are named using the convention of RHoK [City Name] (e.g. "RHoK Bangalore"). A location-specific RHoK logo will be provided for each event, which you should use in promoting the event. Do not use the main RHoK logo.

Event Guidelines

- The hackathons will begin on Saturday morning and finish on Sunday in the early evening. Ideally, hackers will have the ability to continue using the venue overnight, but it is not required. If you plan your event for Friday to Saturday, please contact the RHoK core organizing team for approval of the schedule change.
- There will be a need for a speaker or MC to open the hackathon on Saturday morning – someone who will introduce the problem definitions and make the call to action. Consider asking someone from your local developer community who is a good speaker.
- When the problem definitions from the RHoK website are introduced and groups are forming around them, attendees should also have a chance to introduce challenges on the spot and invite others to collaborate with them.
- At the end of the weekend, people will present their hacks to the group in brief (5 min max) PowerPoint presentations. Streaming these presentations on the web will give teams opportunities to be reviewed by RHoK sustainability partners who can bring funding, mentorship, and expertise in sustaining a project after the event.
- Select a group of 4-8 judges (including both developers and subject matter experts) who will consult on the hacks presented and decide the winning hacks.
- Following the judging, hackers will reconvene for an awards ceremony, where prizes will be given for 1st, 2nd and 3rd place. Your local partner organizations may also choose to sponsor specific challenges and contribute a prize for the hack that best meets that challenge.

Chapter 3:

What to Expect

While Planning a

RHoK Event

Planning a hackathon is hard work, but also very rewarding. The effort put into creating a smoothly run event will result in greater numbers projects developed, which in turn makes your local community stronger and more effective at making change. One of the goals of a hackathon organizer is to take care of all logistical concerns associated with planning an event so the participants can focus solely on developing solutions.

Costs to Consider

The costs associated with organizing a successful RHoK event are highly variable depending on the host city. Below is an overview of the elements of a RHoK event that will need to be funded. This document provides helpful tips for both funding and reducing costs that we have learned from previous events in the individual element guidelines that follow.

General Event Items that Require Funding

- Venue
- Catering
- AV Support/connectivity/bandwidth
- RHoK Swag
- Judging
- Prizes

Venue Guidelines

A good venue sets the tone for your RHoK event. Securing a venue can be one of the most expensive elements of an event so RHoK always encourages organizers to look first for a venue donation. Some good venue options are local hack spaces, community centers, conference centers/rooms and university campuses. Below is a list of general guidelines to follow when looking for a venue for your RHoK event.

- The space is available all day Saturday and all day Sunday.
- The space has the capacity of holding all attendees in one large room for briefings, presentations, and awards ceremonies.
- 24 hour access so the hackers can work overnight on Saturday, if they want to.
- Ability to have smaller breakout rooms or areas where groups can work together.
- Easily accessible via public transportation (if available in your location)
- Reasonable access to building (no high security buildings)
- Ability to bring in food, or cost of catering at the venue if the venue does not let you bring it in from the outside.
- Tables and chairs for small group gathering and brainstorming.
- Bathrooms available.
- Place to throw garbage (an outside dumpster).
- Think about post-event breakdown and cleanup. Find out what the venue requirements are, you may need to find people to help you clean up after the event.

Food/Catering

RHoK events are all day affairs so organizers are encouraged to provide food and drinks for the attendees. It should be noted that food/catering are not absolute requirements. Some RHoK events may be very small or planned too quickly for sponsorship or in-kind food donations. Events without food or with minimal snacks and drinks have been successful in the past.

You should plan to provide a simple breakfast, lunch and dinner on Saturday and breakfast and lunch on Sunday. Snacks, drinks, water and caffeine should also be available throughout the weekend (and overnight on Saturday, where applicable).

- Ask your local partners to sponsor a meal or snacks and drinks for the hackathon and provide them publicity in exchange—a chance to speak to the hackers about their work, exposure of their logo on the RHoK website, their names or logos included in your outreach materials and publicity about RHoK in advance of the event.
- Talk to local restaurants and caterers and see if you can get the catering donated or at a reduced price, to support the “hacking for humanity,” in exchange for local publicity as outlined above.
- To minimize costs, consider purchasing sandwich fillings or ordering pizza.
- Check with your venue to make sure outside food and drinks are allowed. Some venues may require you to use certain catering companies. Often these are expensive so be sure to plan ahead and look for sponsorships.

Hint: Get some healthy snacks to help the hackers maintain their energy throughout the weekend. Avoid too many sugary and fatty snacks.

Supplies

Let your attendees know to bring their own laptops if they have them.

An easily overlooked requirement of a good hackathon is electricity. It is up to the event organizer to ensure that there is easy access to electricity. Check out the available electrical outlet count. You should have at least one outlet per person – these do not need to be wall outlets, they can come from the use of extension cords and power strips.

We have also found that when whiteboards, blackboards or large notepads are available they are used extensively by the teams.

We recommend you also have the following available, where possible:

- Power strips
- Extension cords
- Projector/Screen (or blank wall)
- Microphone/Podium
- USB drives
- Tables/chairs (if not provided at venue)
- Name tag stickers
- Laptop/printer (for registration and other general purposes)
- Office supplies: Pens, pencils, highlighters, stapler, paper
- Disposable plates, cups, utensils, plastic tablecloths, garbage bags
- Whiteboard/Blackboard/Large Paper
- Dry erase pens/chalk/markers

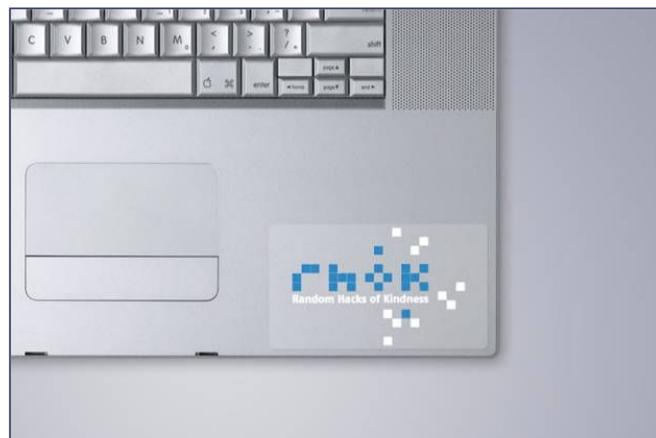
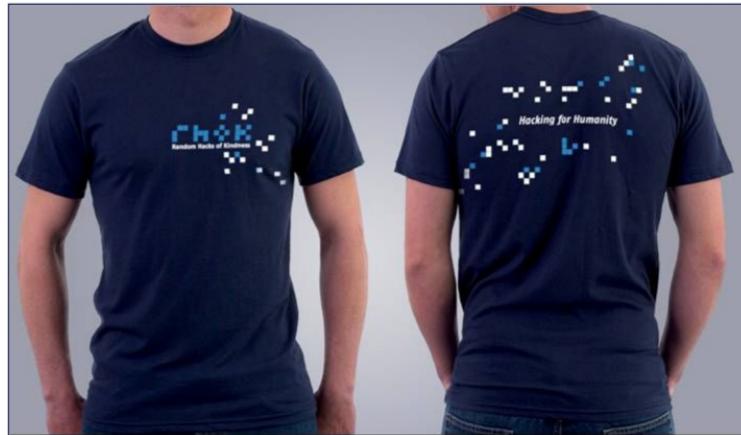
Connectivity

Internet connectivity can make or break a hack event. A slow connection greatly decreases the amount of work that gets done and frustrates attendees. When estimating the IT infrastructure needed for your RHoK event, remember that each hacker is likely to have multiple wifi enabled devices. At a minimum you will need:

- Bandwidth sufficient for all attendees to be actively using the Internet simultaneously. Try to get the fastest speed your country offers as bandwidth. Your venue may require bringing in additional bandwidth for the event to be sufficient to support your audience.
- Plenty of IP addresses available for your attendees (ideally plan to have 2 IP addresses available for each attendee).
- Open Wi-Fi (no passwords), or ample passwords pre-set to accommodate all your attendees.
- Capacity for video/web streaming.
- Capacity for live online connection with other RHoK sites.

Swag

Swag designs for T-shirts, water bottles and laptop stickers are available to local leads for printing locally at your own cost. Please contact thea.aldrich@rhok.org for swag designs and details, or to be put in touch with other RHoK locations in your country, if any, to coordinate a bulk purchase of swag.



Judging

This section of the planning kit is to provide guidance for judges at Random Hacks of Kindness (RHoK) events. Judges are often social sector Subject Matter Experts, industry experts and mentors, or members of the event organizing team. We hope this guide assists you in having a positive judging experience, and helping give participants a sense of accomplishment for their contributions.

Prior to the RHoK Event

- A judging scorecard is recommended, you will find a sample below. It provides an easy way to rate teams and their work, and can be used to inform the discussion and decision making process of the judges. Judges are not required to use the scorecard, or make their final decisions based on scores.
- Judges are advised to review the event page for their RHoK location before or during the event at www.rhok.org/events. The event page should list the problems being worked on at the event. Judges are encouraged to review the problem definitions to familiarize themselves with the context and problems as they are defined for the volunteers.
- Judges are advised to arrive at the event at least 1 hour before judging commences. This will give judges time to meet the organizers, participants and other judges. Judges are encouraged to arrive earlier and spend more time with the teams, as they will be more informed during the judging process.

During the Judging/Presentations

Each team will present their work. Team sizes may vary, from an individual to up to a dozen people. Participants may be collaborating with other individuals or participants in other cities around the world. Depending on your cultural context, you may want to ask questions during the presentation, or save them for after each presentation.

Providing constructive feedback is essential to building the capacity of the participants. Judges are encouraged to consider writing notes of encouragement and advice that may be shared with teams later. One of

the most valuable things judges can do is introduce teams to people in their network who may be interested in their work.

Deliberation

After presentations have completed, judges should find a quiet and private space to discuss their impressions. During this time you will find your scorecards and written notes helpful, as it can often be difficult to remember the details between so many teams.

During the deliberation process it's advisable to discuss teams one by one, and to let each judge speak at least once about each team. Disagreements are fine, but they should be respectful and explained.

Awards

When announcing the prizes, it's helpful to explain why each team is receiving their award. Specifying what they did that impressed the judges is important to help participants learn.

To build suspense as awards are announced, you can announce them in reverse order (3rd, 2nd, 1st).

Organizers are responsible for obtaining the prizes given to the winning hacks. We encourage organizers to arrange for prizes that promote either the continuation of work on the projects or further the overarching goals of RHoK and its partners. However, cash and material goods may be given out.

Team/Project Name:

Impact

How much impact (quality and quantity) could the solution have? Could this solution solve a big problem or a little one? Could it make a big change or a little change on that problem?

1 Poor	2 Fair	3 Good	4 Great	5 Excellent
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Complexity

How much progress did they make during the event? Did they start from scratch or build on an existing technology? How creative is the solution?

1 Poor	2 Fair	3 Good	4 Great	5 Excellent
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Sustainability

How good is their plan for next steps? How prepared are they to continue their work beyond the event?

1 Poor	2 Fair	3 Good	4 Great	5 Excellent
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Product

How well does it fit the needs of the problem they chose to tackle? How user-friendly is the technology? Is it a complete solution, or do they still have a long way to go?

1 Poor	2 Fair	3 Good	4 Great	5 Excellent
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Presentation

How well did the team communicate? How well did they respond to questions from judges?

1 Poor	2 Fair	3 Good	4 Great	5 Excellent
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Total Score (Sum):

Notes:

Chapter 4:

Funding Your

RHoK Event

Who to Ask

The responsibility to organize RHoK events falls entirely to the local leads. This includes fundraising. Over the years we have found funding to be one of the most daunting aspects of organizing an event. The chapter below offers some helpful hints that may aid you through this process.

We have found that many RHoK events successfully acquired sponsorship, both cash and in kind donations by soliciting locally based technology firms and organizations that would likely have a vested interest in the concept of RHoK. Historically it has been more successful when approaching a potential local partner for support to ask them to fund or donate a specific item. For example you may approach a local cafe who promotes their free WIFI to supply food for the event or ask a local tech company or hacker space to provide their offices as event space.

- Interested organizations may include:
- Software and technology companies
- Telecommunications companies
- NGOs and civil society organizations
- Government offices
- Universities, etc.

What to Ask For

Some of the items generally submitted to potential sponsors are:

- Directly providing funding to RHoK to be used towards general event costs.
- Donating venue space or bandwidth to the event.
- Sponsoring a Friday night reception and catering.
- Sponsoring or donating a meal or snacks to the hackers.
- Funding one of the prizes for the 1st, 2nd and 3rd place winning hacks.
- Contributing a challenge statement and a specific prize for the best hack responding to that challenge.
- Donating AV support to RHoK, or agreeing to make a video of the event.

What Sponsors Get in Return

Local sponsors are a great pool from which to draw judges, hackers and media coverage. In return for their involvement in RHoK, local sponsors receive the following incentives:

- Their logo showcased on the RHoK website.
- Their name in press releases related to the location they are sponsoring.
- The ability to share information about their company or organization during mealtimes and via printed materials at the registration table.
- Networking opportunities with attendees and other sponsors.
- The ability to participate in media coverage for the RHoK event they are sponsoring.

Chapter 5:

Marketing Your

RHoK Event

Hacker Outreach

Successfully advertising your RHoK event is another challenging element of the planning process. Effectively getting the word out to developers, Subject Matter Experts and the local media is essential to the success of the event. The following chapter will outline promoting your RHoK event to different target groups.

Getting the word out to the local developer community ensures that your RHoK event will have a large and diverse pool of talented and enthusiastic hackers to work on the problem definitions. Once your License to RHoK has been approved and your Eventbrite registration page is live, we recommend you promote the event to developers and other tech-savvy communities via the following channels:

- Post the event on mailing lists with a technical audience. Blog about the event or request locally influential bloggers write about RHoK.
- Contact local universities to promote the event through their student mailing lists and attempt to get the event listed in the activities section of the student newspaper.
- Post the event on Meetup.com and contact all the technical, mobile and web local Meetup.com administrators and ask them to post the event to their communities.
- Organize a local Twitter and Facebook campaign.

- Send direct emails and phone calls to friends and other people in your network that may be interested in attending or helping you advertise the event.
- Contact the Technology editor of your local newspaper and ask them to do a short story about the upcoming RHoK event.

Sample Message to Developers

Here is an example of a message you could easily customize and send out to the groups listed above:

Random Hacks of Kindness Global – RHoK [CITY]

Please join us on June 5th and 6th for a RHoK hackathon in [CITY NAME]!

Hacking for Humanity

Throughout the weekend, we will be coding around real world problems from all over the world. RHoK has been working with subject matter experts around the world to develop problem statements addressing real world development and humanitarian challenges. These problem statements will be the hacking challenges thrown out to the developers at the RHoK hackathon. See those statements as they develop at www.rhok.org.

At the end of the weekend, we'll invite you to share your RHoK application with the group with the potential to win prizes and see your work put to use on the ground to save lives and alleviate suffering.

What Do I Need?

We will provide facilities, power, food and refreshments to help you write your application. Just bring your laptop, ideas, and enthusiasm to complete the mix.

When and Where?

The [CITY] hackathon will take place from Saturday, June 2nd at 8:00am until Sunday, June 3rd at 5:00pm. It will be held at [VENUE NAME AND ADDRESS WITH LINK TO MAP].

Space is limited so sign up now: www.rhok.org/

Subject Matter Expert Outreach

RHoK strongly recommends that organizers make every attempt to have Subject Matter Experts on hand at the event. Having a few SME's attend the event provides hackers with clarity about the problem definitions and proof that the work they are doing will have a real impact in the world. Additionally, having local SME's on hand at the event allows the hacks coming out of RHoK to be locally relevant. While problem definitions will be posted on the main RHoK website and hackers have the ability to work on the hack of their choice, we encourage RHoK organizers to reach out to the local community to see what issues they are facing that RHoK hacks may be able to solve.

We encourage you to search for local Subject Matter Experts and problem definitions at the following places:

- Local universities and academic institutions.
- Local, state and national government offices.
- Local NGO's and civil society organizations.

Hint: When speaking with these organizations it will be helpful to ask them to share data relevant to their problem definition prior to the event.

Media Outreach

It is suggested that RHoK organizers contact the local media a few weeks prior to the Global RHoK event to ensure coverage. Sample press releases will be circulated to local lead teams at least four weeks before the hackathon. Share those press releases with your local media outlets (press, TV and online media) and invite them to cover the event. You may need to translate the press release into your local language.

We encourage you to advertise your RHoK event through your local partner's blogs, Facebook pages and twitter accounts. These messages will likely be reposted via the main RHoK website, Facebook page and Twitter account to ensure maximum saturation.

Hint: Be sure to include the RHoK registration page in all communications.

It may also be beneficial to reach out to local, national and international tech blogs that you read and ask them to repost about your RHoK event. Include relevant links and contact information. The response to this method of advertising is generally well received by both the channel and the audience.

Please contact elizabeth.sabet@rhok.org for any questions regarding PR.

Chapter 6: Preparing for Your Event

Pre-Event Social Meetings

Experience has shown that it is helpful to get the hackers together before RHoK events to meet some of the Subject Matter Experts, start thinking about problems they might like to work on and begin forming teams. These pre-hackathon meetings are also a great place to find volunteers to help you with logistical issues that may arise during the event.

These informal, social events may take place a week before RHoK, the night before the hackathon or anytime in between. In addition to giving attendees a better sense of the problems they will be solving, these events foster a sense of community and shared mission that lasts well beyond the two day hacking event. They also help people join teams and start brainstorming solutions to the problems.

We suggest you host these informal meet and greets at a local cafe or pub. The causal, public environment tends to put people at ease if they are nervous in social settings. Hosting your pre-event at a cafe also gives attendees the ability to come and go as they please and have easy access to refreshments. If you are unable to host a pre-event meeting, we suggest you host a conference call with the Subject Matter Experts to refine problem definitions. This is especially important if local SME's will be submitting a problem definition but will not be able to attend the actual event.

A great agenda for a pre-meeting might include some small brainstorming sessions to refine the problem definitions being brought to the event. Asking people to assemble into teams and offer advice or thoughts on the problem definitions will help craft camaraderie,

Registration

Once you have received your License to RHoK you will be given administrative access to an Eventbrite registration page located in the Events section of the main RHoK website. We encourage you to include links to this page in all your outreach activities. Encourage people to register for the event in advance so you will be able to find an appropriately sized location and meet the connectivity and refreshments requirements.

Local RHoK organizers will be provided with access to the attendee names and email addresses for their location. Please note that the information in the spreadsheet provided by RHoK registrants is for use in communications regarding RHoK ONLY. You may not use the contact information of attendees for any other purposes.

You can anticipate that 50 – 60% of people who RSVP will actually attend, and some will appear the day of the hackathon who have not signed up. This may vary per event. You are welcome to register additional people on the spot if you believe you will have the bandwidth and swag to accommodate them. If you expect to be over capacity, priority should be given to those who signed up in advance.

You should set up a registration desk at the entrance to the room and have someone available to:

- Check in attendees if they have RSVP'd by marking their name on a list.
- Provide a computer (with Internet access is ideal, but not necessary) so attendees can register if they haven't RSVP'd.
- Give out the name tag stickers and swag to the attendees.
- Direct the attendees to where they can sit / put their stuff, etc.
- Answer questions they may have.

Event Documentation

Please set up the following accounts/services in advance of the RHoK event. We also suggest you encourage attendees to tweet and blog during the event.

- Stream live video of your event for all other locations to tune into by setting up a specific RHoK uStream account for your location.
- Create a YouTube page for your location, and share the site and password with the RHoK organizers. Encourage participants to take videos of themselves with their webcams reporting on the event and the progress of their projects, and post them on YouTube.
- Set up a Flickr page for your location and share the site and password with the RHoK organizers. Encourage participants to take pictures of the event and post them on your location's Flickr page.
- Create a Twitter account for your RHoK location. The naming convention for all accounts will be #RHoK [Location]. Be sure to share the password and site link with the RHoK organizers.

Chapter 7: During the Event

All RHoK events generally follow the same agenda. This practice gives attendees a better sense of the global, communal nature of RHoK and eases the burden on event organizers. In this section of the Planning Kit we will provide you with an agenda template and give you some helpful hints to remember as your hackathon kicks off.

Agenda Template

Saturday:

- 9:00 a.m. Registration and Breakfast
- 10:00 a.m. Schedule and logistics announcements
- 10:30 a.m. Subject Matter Expert briefing
- 11:00 a.m. Begin coding
- 12:30 p.m. Lunch
- 1:30 p.m. Coding continued
- 4:30 p.m. Optional progress briefing, more coding
- 6:30 p.m. Dinner
- 8:00 p.m. More coding

Sunday:

- 9:00 a.m. Breakfast
- 10:00 a.m. Logistics briefing & updates
- 10:15 a.m. Begin coding
- 12:00 p.m. Submission Deadline
- 12:00 p.m. Lunch
- 1:30 p.m. Presentations
- 3:00 p.m. Judges Voting
- 3:30 p.m. Awards
- 4:00 p.m. Post event social

Communication during RHoK

RHoK organizers will wear many hats during an event. Once the hackathon kicks off one of the most important roles the local lead will play is that of communicator. Below is a list of some of the communications channels that will need to be either handled by the event organizer or delegated to a volunteer prior to the event.

Due to the marketing and advertising done prior to the hackathon it is likely some form of mainstream media will cover the event. Typically this coverage will take the form of local newspaper or TV. It is customary for reporters to notify you ahead of time that they will be attending. However, be prepared with a few talking points just in case. Remember to thank the local sponsors and hacking community.

If you are contacted prior to the event by a reporter and would like more guidance or a quote from one of the RHoK founding partner organizations please contact elizabeth.sabet@rhok.org

Local leads are also asked to help hackers and Subject Matter Experts break into teams. Often attendees will need some level of assistance either finding a problem definition or conversely, matching a team with someone with a specific skill set. Organizers are encouraged to take an active role in the time between the SME briefing and the start of coding. We suggest you walk around the groups to learn of any gaps they may need to fill. Also keep an eye out for people looking to join a group but may need some assistance with an introduction.

Organizers are also asked to either manage the social media and streaming aspects of the event or to delegate that task to a trusted volunteer. A list of all of the social media channels used during RHoK events can be found in chapter 6.

Above all else, RHoK organizers are asked to stay in contact with the Operational team periodically during the event. This quick Skype check in's will consist of reporting on the hacks being worked on at each location and reporting issues needing the attention of the Operational partners. These calls are also great ways to ensure teams working on the same problem definition in different locations are able to collaborate.

Chapter 8: Timelines

This chapter of the Planning Kit is designed to assist event organizers with a timetable by which plan their event. Keep in mind that not all locations will have months to prepare. Each RHoK event is unique and will have varying levels of prep time.

Eight Weeks until RHoK

- Confirm that you have a hackathon venue with appropriate capacity and bandwidth. Forward the information to elizabeth.sabet@rhok.org for inclusion in the RHoK website.
- Begin outreach to developers to encourage registration and attendance at RHoK.
- Post on your organization's blog about your involvement in RHoK and link to the RHoK website and registration.
- Reach out to local tech bloggers and ask them to post about RHoK.
- Reach out to local funding partners about funding various cost lines of RHoK (ongoing).
- Contact a vendor about printing of T-shirts and swag.
- Confirm host for (optional) reception and invite speakers.
- Reach out to local subject matter experts for problem definitions
- Inform yourself of any security requirements at your host location (e.g. need for ID to get in).

Four Weeks until RHoK

- Begin mainstream PR—send press releases to local media. Extend invitations to reception for press, where appropriate.
- Continue outreach to funding partners. Forward logos of confirmed local partners to elizabeth.sabet@rhok.org for inclusion in the RHoK website.
- Order RHoK T-shirts and stickers from your selected vendor.
- Share reception location and details with elizabeth.sabet@rhok.org for inclusion in RHoK website.
- Secure a local organizer, developer or subject matter expert to act as the MC for the event.
- Develop strategy for AV support (projection of PowerPoint presentations, presence of webcams to record footage for your uStream and YouTube channels).
- Set up accounts for your RHoK location on uStream, YouTube and Flickr. Make sure that RHoK appears in the account name. Share the site and login/password with elizabeth.sabet@rhok.org.

Three Weeks until RHoK

- Invite your judges to participate and distribute judging criteria.
- Confirm the speakers for Friday night reception (if applicable).
- Confirm sponsors for hackathon costs.
- Decide on prizes for winning hackers.

Two Weeks until RHoK

- Order meals that will be served to RHoK attendees.
- Print RHoK posters.
- Confirm necessary AV support.
- Purchase prizes for winning hackers.
- Determine which subject matter experts, if any, will be present at the hackathon to present their problem statements in person.

One Week until RHoK

- Pick up RHoK T-shirts and stickers from vendor.
- Order or purchase snacks that will be available onsite during RHoK hackathon.
- Send out a confirmation email to all those registered for your location, confirming start and end time of hackathon, location address, any security information and reception details (if applicable).
- Obtain informational materials from local partners to share at check in (if applicable).
- Confirm bandwidth availability (sufficient IP addresses, passwords, access points, etc.)
- Purchase any additional items needed (markers, paper, power strips, name tags, etc.).

One Day until RHoK

- Download registration spreadsheet to use at check in.
- Deliver swag to hackathon location for distribution at registration.
- Confirm delivery of meals (if being catered from outside).
- Confirm that space and AV equipment has been properly set-up.
- Deliver snacks/drinks to hackathon location.
- Put up RHoK posters in appropriate locations.

Organizing and hosting requires a lot of work but the end result is well worth the effort. During the course of this process you will have become an integral part of a caring, fun and innovative community working to change the world through technology.

And you will not be alone. The RHoK Operational Team, thousands of volunteers and our partners all around the world are all here to help local organizers and are ready to lend a helping hand when needed.

RHoK will be hosting a series of workshops over the course of the months leading up to the semi annual Global RHoK events. The workshops will cover topics such as fundraising, communication, and PR and event logistics in depth. They will also give local organizers a chance to meet other people planning RHoK events and get to know the team behind RHoK. The dates of these workshops will be announced two months prior to the events.

Chapter 9: After Your RHoK Event

A successful RHoK event can be a launching point for continued work on problem definitions and hacks with the potential to be taken to the next level. In the past, hacks born at RHoK have gone on to be deployed by Subject Matter Experts, used as prototypes for paid development and hackers have been hired by companies and organizations with a special interest in a solution. While most attendees at RHoK events are not able to devote a large amount of time to hacking on their solutions after the RHoK event, we recommend that organizers anticipate helping the local RHoK community continue work if they are willing/able. A few simple tasks can help solidify the local community, move hacks closer towards success and make planning future RHoK events easier.

Follow Up: 1 Week

- Fill out the post-event survey for leads sent the day after RHoK.
- Write a blog post about how everything went at your event.
- Send a thank you email to your sponsors.

Follow Up: 1 Month

- Host a hacker meet-up at a local community space, university, restaurant, bar, etc. where the RHoK community can get together and report on how their hacks are progressing (between 1 and 2 months out)
- Connect with the RHoK community manager to debrief and share lessons learned.
- Maintain contact with the Subject Matter Experts and Hackers to hear how their projects are going.

Follow Up: 2 Months – 4 Months

- Keep the RHoK community informed about local hackathons, meet-ups and events that may be opportunities to move work forward on their projects.
- Tweet about how projects are doing from your local RHoK Twitter account.
- Let the RHoK Community Support Manager know about really promising hacks that could use support.

Sustainability Partners

RHoK in June 2012 has a new addition: sustainability partners. While this is still in its early stages, sustainability partners are organizations that will be offering mentorship and support to projects that have a high potential for impact and success in the real world. These partners will contact projects that they wish to sponsor in the days and weeks following the RHoK event. Remember that this is a completely optional component for the teams involved and if they do not wish to receive support and mentorship, they do not have to.

In this initial edition of the sustainability partnership, Geeks Without Bounds (www.gwob.org) will be viewing every final presentation they can. They will then pass on projects that they feel are effective and potentially impactful to the other sustainability partners.

A vital component to giving the teams at your event the chance for a sustainability mentor is to make sure that the final presentations on the second day of the event are streamed live on Ustream or a similar live video streaming method.

Another important component is to publicize the time of your event presentations in advance to the RHoK global organizers so proper attention can be given to each event's set of presentation.

Appendix P: Multi-Source Scripts

<https://github.com/FOSSRIT/multigource-fossrit/tree/rhok>