

# Freedom Fone: Mobile information service for social development

Position paper for W3C Workshop April 1, 2009

Author: *Brenda Burrell*, The Kubatana Trust of Zimbabwe, [www.kubatana.net](http://www.kubatana.net), [info@freedomfone.org](mailto:info@freedomfone.org)

---

## ***Where did the Freedom Fone idea come from?***

As information activists living and working in a dictatorship, Kubatana realized that it was essential to continue innovating in the area of information dissemination in order to creatively deliver information to members of the general public.

Thanks to our innovative use of information technologies and SMS to reach out to Zimbabweans, Kubatana was invited to participate at MobileActive in Toronto in 2005. The event brought a small group of activists and developers together to inspire and inform each other – with a specific focus on mobile telephony products and initiatives. The idea for Freedom Fone was conceived in that creative environment – to harness open source telephony platforms and make it easier for activists to independently produce dial-up information to motivate, mobilise and inform their communities – big or small.

The idea was basically to sex up Interactive Voice Response (IVR) and use it in a creative way to deliver a variety of information to a variety of people.

Sounds simple doesn't it? Sounds like this has been done before; sounds like it's already Out There. But it's not or at least the products that are already out there aren't simple to use. And this is where Freedom Fone comes in . . . our attempt to leverage the fastest growing tool for personal access to information 24/7 - the mobile phone and make it easy for users to create their own dial-up audio menus.

Elements used by Freedom Fone aren't new, but their intuitive convergence makes it innovative and globally relevant. Global Voices' Ethan Zuckerman said recently "I'm surprised there hasn't been more work done making interactive voice response systems usable for development purposes." Freedom Fone delivers exactly that.

With the assistance of Tad Hirsch, a doctoral student at MIT at the time, a basic prototype of Freedom Fone was developed, capable of receiving and returning calls via mobile sim cards without any dependence on the internet.

We field tested this prototype in Zimbabwe in 2007 using the content from an adolescent sexual health program<sup>1</sup>. Although the field tests were largely successful, they highlighted the challenges of exclusively using mobile telephony at the backend given the chronic network congestion in the country.



*Young Zimbabweans involved in field testing Freedom Fone in Chitungwiza, near Harare*

---

<sup>1</sup> *MobileActive07 Preview! Mobiles as Alternative Media in Zimbabwe* - Corinne Ramey MobileActive - <http://mobileactive.org/mobileactive07-preview-m>, accessed 18 December 2008

In order to take our idea further and win financial support for it, we entered Freedom Fone in the Knight News Challenge in 2008. Freedom Fone was one of 16 global winners and we are now in the process of developing on from where we left off with the prototype.

### **OK, so how about some scenarios to get your imagination going?**

#### *Imagine this*

Using the Freedom Fone dialup information software, Zimbabwean HIV/AIDS activist and advocacy organisations facilitate greater access to relevant information to people affected by HIV/AIDS. These organisations operate national toll free numbers allowing Zimbabweans to access critical information without exclusionary cost. Because Freedom Fone provides the ability to allocate individual channels to different groups, organisations collaborate around a single deployment of Freedom Fone to aggregate their content thereby offering a variety of materials on HIV/AIDS prevention, treatment and support.

#### *Visualise this*

Democracy Radio's Word on the Street project educates South African journalists about their municipalities. Using the Freedom Fone software the project sets up a dialup service and encourages residents to contribute their opinions, news stories and local issues directly to the Word on the Street call in numbers. Democracy Radio mixes audio compilations from residents' contributions and its own material to provide self-help materials that are accessed by the public in urban and rural areas via cell and landline phones creating informed and rights aware communities.

#### *Right here, right now*

And most recently and pertinently, here's an excerpt from an email received from a colleague working to reduce the high levels of sexual violence targeted at women in the Democratic Republic of Congo:

*There is definite interest in the use of Freedom Fone as a means to reach out to victims, especially given the chronic security constraints which make travel to remote areas extremely difficult. Many of the counselors who are out in the field have fled back to Goma in recent weeks, effectively cutting off contact between themselves and the many people who need their services. Freedom Fone would be able to leap-frog all of that and there is agreement that this would make a huge difference.*

### **More specifically, Freedom Fone aspires to provide**

- An innovative, easy to use tool to develop audio content for mobile phone (and other telephone) users
- The ability to produce audio content and interactive voice response (IVR) menus in any language without having to be a technical programmer
- A scalable telephony tool that can be used to communicate with small communities and national audiences alike
- A cost-effective tool that takes advantage of the fastest growing user-base of personal communication devices in the world - especially in the developing world
- A viable communication alternative in countries where governments monopolise or heavily censor public media like radio, television and print
- A practical tool for communications in disaster scenarios
- A new way to assist visually impaired people

### **So then, how does it work?**

Audio files are stored in a Content Management System (CMS) which is updated through a simple to use browser interface. These audio clips populate an Interactive Voice Response (IVR) menu through which callers can navigate information. Deployment in any language is possible as key global files for menu prompts can be uploaded through the browser interface to the CMS.

Individuals can contribute questions, content and feedback by leaving voice messages via the IVR interface. Freedom Fone can be operated as a collective, with different groups managing different channels (IVR menu options) of information from the same installation.

Freedom Fone is network agnostic and can be accessed by mobiles, landlines and softphones (eg xlite, skype). Scalability can be factored in through Voice over Internet Protocol (VoIP) in countries where VoIP is available.

This technology can be used in a 'cost free to caller' context - where users could dial a toll-free number to access the service - or tickle a number that identifies the caller's number (without answering the call) then calls them back, connecting the user to the IVR menu content. In a 'low cost to caller' context users can SMS in for a call back.

There are no geographical or community size limitations to the implementation of Freedom Fone. The interface facilitates frequently updated short segment audio programming. It removes the technical challenges of hosting and setting up the back-end, allowing users to concentrate on content.

The telephony sector is not straight forward, with many alternatives and standards prevailing in different countries. Freedom Fone has much ground to cover to achieve its goal of simplifying the deployment of dial-up information systems.

### **Challenges and barriers**

One of our biggest challenges will be getting development organisations to engage innovative technologies within their communication and media strategy. In our experience many of the organisations are under capacitated to take on technology projects – short of trained staff, budget, connectivity alternatives and a wider vision of communication opportunities. SMS platform, *FrontlineSMS*<sup>2</sup> is an example of an extremely useful software tool that has very limited uptake in Zimbabwe at the moment in spite of the fact that more Zimbabweans have access to mobile phones than email or internet. There are a variety of factors that figure in the lack of uptake from fear of trying something new, to budget and staff constraints as well as unsupportive infrastructure.

Other challenges include:

- Start up costs / equipment. We want organisations to be able to use Freedom Fone without having to buy a new computer, or convert an existing one to be a Freedom Fone server. But building the software that can install on any machine and any Operating System is challenging. Thus we are trying to find a middle ground that will make the software accessible to a range of users in the first instance, and expand our platform and hardware requirements in later versions.
- Connecting the backend to different telephony options. In many ways, VoIP presents the easiest telephony option for Freedom Fone to work with, and it is the most scalable. However, in contexts such as Zimbabwe where bandwidth is limited and expensive, VoIP termination not yet legal and digital data lines a scarcity, Freedom Fone will have to connect to mobile phone SIM cards (which present challenges of network congestion) or land lines (and their analogue limitations and variations).
- Learning to work with audio. If an organisation wants to use Freedom Fone, but has never worked with audio before, it will need to get familiar with recording their files, editing them, and building compelling audio programming into short segment files. Existing open source audio editing software such as *Audacity*<sup>3</sup> makes the editing easy, and we are working on features that enable organisations to record content directly over the phone or via their computer to get around some of the audio equipment issues. Still, generating **compelling** audio content presents challenges in itself, beyond the technology.

There will still be cost hurdles related to accessing content via mobile phone for some people but we look forward to developing a product model that is able to subsidise some portion of users, in order to make the service more accessible to poor communities. We are also exploring a multi-tenant, hosted version of Freedom Fone that will allow organisations to cohabit and share overheads, thus reducing their own administrative costs, and increasing the likelihood of finding advertising revenue or corporate sponsorship to subsidise programme and caller costs.

---

<sup>2</sup> See <http://www.frontlinesms.com/>

<sup>3</sup> See <http://audacity.sourceforge.net/>

## ***Where is Freedom Fone at right now?***

Freedom Fone is still in the initial stages of development. We have identified our project architect and lead developer and are currently finalising the detailed technical specifications to enable us to secure the balance of our development team, and begin developing the first stable, distributable version of the software. We hope this will be ready by August 2009. We will then be looking for organisations with strong communications, information and technical capacity, with whom we can partner for initial, targeted deployments of Freedom Fone.

Using the Freedom Fone prototype, we launched the first public deployment of Freedom Fone at the Association for Women's Rights in Development (AWID) 2008 Forum in Cape Town<sup>4</sup>.



We have secured funding for extensive development and deployment of this service both in Zimbabwe and the region, and we plan to develop call-in information services around issues such as HIV/AIDS, elections, and small-scale farmer support. Other future uses could include citizen journalism, legal rights information, community radio style initiatives, and information for minorities, sex workers and refugees among many others.

We are planning our development to satisfy, among others, these user needs:

- I want to change my content without having to use the internet.
- I need to contribute content effectively using a slow internet connection.
- I want to make it easy for people to contribute content.
- I want to add audio files without having to buy special equipment or learn to use new software.
- I want to manage a dial-in information service without having to think about the backend.
- I want to scale my service to handle calls nationwide without becoming congested.
- I want my audience to know when I publish new content.
- I want to track usage of my system by the public.
- I want to offer some people capped free access to my service.
- I want to be able to poll my audience and give them feedback on the poll results.
- I want to be able to charge my audience to access some of my content.

**Get involved!** Got any other ideas? Please email your user statement to [info@freedomfone.org](mailto:info@freedomfone.org)

## ***Lessons learned so far***

Freedom Fone has presented a steep learning curve for us, and there is still much more we have to learn. Each day we are confronted with the tension between patience and perseverance.

<sup>4</sup> <http://www.kubatana.net/html/archive/women/081203kub.asp?sector=WOMEN>

On the one hand, our operating environment is plagued with challenges - a collapsed local economy which has only recently switched from the hyperinflationary Zimbabwe dollar to the far more stable US dollar; an electricity, technology and communications infrastructure which is more often down than up; and an employment market laden with unskilled school leavers, while skilled, technical, and innovative resources with initiative have largely left the country for opportunities elsewhere..

On the other hand, for this project to take off we have needed to finalise the development architecture and prepare technical specification documents in collaboration with skilled technical resources based outside Zimbabwe; recruit and manage developers based in a variety of countries; inspire other organisations to see Freedom Fone's potential for their work; and develop a local deployment of Freedom Fone in Zimbabwe.

So we've been learning to keep our irritation in check, our optimism high, feel grateful for the small victories we can measure each week, and our eyes on the big picture.

We are steadily adding to our understanding of: technical products and platforms such as Linux, Asterisk, and telephony systems; the kind of content to include, and how to present valuable information in short, compelling, memorable sound clips; and finding the best ways to promote our service, getting people to try something new, and encouraging organisations to take up a new technology to expand their outreach.

Some of our biggest lessons have been about learning to run a software development project, the different roles and stages such a project requires, and the need to trust and work with a varied team of developers operating in a dispersed network.

Some of these lessons<sup>5</sup> include:

*Start with the low hanging fruit*

Build an interest and a sense that something is happening around your project from as early on as possible. So do a few things early on which are quite contained and which build this sense of progress - the website, the blog, the targeted deployment of the prototype of the software, etc. That way, even if it takes six months before the full, stable version of your software is developed, people can still get a feel for what you're trying to do, and there is a vibrant, dynamic forum through which people can contribute their suggestions.

*Scope viciously*

It's tempting to try and cram all of the functionality you want your product to have into an early version. Resist That Temptation. Rather, be deliberate and focused about what features you choose to be developed in the first phases, and how you prioritise them. If your scope is too broad, your developers will start to lose interest as the process drags out.

*Avoid spec creep*

Once you've settled on a feature set for a given version of your software with your development team, stick with it. Changing the goal posts during a version, or asking your developers to add "just this one more thing," will make it difficult for your developers to keep their momentum.

***Finally . . . and stay tuned***

It goes without saying that the mobile phone provides tremendous opportunities to enhance communication and information sharing across the African continent. Particularly because Africa is the home of aural cultures, rich in story telling and the sharing of information through the spoken word.

Initiatives that take advantage of SMS, MMS and the mobile web are actively using the popularity of the mobile phone to make information more available to mobile phone users. Freedom Fone is one of the few initiatives accessing what is both the mobile phone's richest and most basic communications potential - the ability to share any type of audio content, in any language.

---

<sup>5</sup> Start with the Low Hanging Fruit with Software Development. Amanda Atwood, MediaShift Idea Lab blog, September 15, 2008. <http://www.pbs.org/idealab/2008/09/start-with-the-low-hanging-fruit-with-software-development005.html> Accessed 28 March 2008.