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| Outbreak Smartphone App for iPhone |
| Business Case |

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| iGeek Developers  12/7/11 |

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# System Description

The system we, iGeekDevelopers, are proposing is called “Outbreak.” This system is a mobile app that is designed as a game, but with a research back end. The app will allow the user to create a customized virus to “infect” other phones as well as be able to heal themselves of an “infection” by creating or purchasing a vaccination as well as creating anti-bodies. This app is being designed for the iPhone, specifically for the iOS5, released October 12th, 2011 (Apple Press). The app will utilize the 3G/4G connections to receive geographical data as well as utilize the iPhone’s various embedded sensors. The app will connect to a web server that will be home to a large portion of the data that runs the game.

# Market Sector

The market sector section defines where our system will fit in and who will use it. It will cover how the virus tracking will greatly benefit scientific researchers and how we will motivate the end-user to use our system, so good research data can be collected.

The Outbreak system that we are developing will look like a game at first glance. Everyday people racking up points for spreading their infections and creating vaccines; however, behind the scenes we are collecting each virus that spreads and the location of its successful infection. With this data we can easily create a map with annotations marking a virus’s spread pattern. This data will be both, entertaining for the end-user playing with the system, and priceless for medical institutes looking to track virus propagation.

There are many different institutes around the world that dedicate their time to researching virus propagation and immunity responses. Our system will hopefully be able to give them some insight to these areas as they watch player made viruses grow and spread, while others players are creating vaccines and trying to vaccinate their friends before they get sick. The Texas Biomedical Research Institute’s Department of Virology and Immunology’s goal is to, “develop vaccines and therapeutics against viral pathogens, and determine how viruses replicate and spread through basic and applied research.” The spread data collected from Outbreak will be able to show these companies which geographical areas increase or decrease virus propagation. The key to good data collection is having many users on playing constantly.

Achievements and trophies have been used in many games, including popular ones like World of Warcraft, to motivate gamers to keep playing. We plan on incorporating an extensive achievements system so our users will always have something to do. The user will be awarded trophies and power-ups for infecting people, healing viruses, or inviting friends. Another way to increase user population quickly is to offer the game on the app store for free. Many people are hesitant to spend any money to try out something new, so we need to hook them with the game first, and then create revenue through in-app purchasing. The in-app purchasing will unlock extra features of the game without giving an advantage to the player, such-as a custom head piece for virus creation.

# Similar Systems

As far as our project is concerned, it seems to be the first of its kind (multiplayer location based infection game). So the basis for finding like systems is a bit of a stretch. As far as competition, this will be in competition of every casual game app out there, which is quite an expansive list.

Bump:

A like system as far as architecture is the Bump app. It uses location data along with the timings of a bump to allow users to share personal contact information with the shake of a phone. It connects to a server and pairs together people that have bumped within a certain time in a like location. The cost of this app is free, however not in direct competition with our system because the functionality is completely different. The good thing about bump is that it is convenient, but limited to only bump approved data. From this system we took a similar architecture of putting everything to a database which controls everyone’s gameplay. An improvement some could argue is that we are making this system into a game/simulation, which some would say is an improvement.

Pocket Pandemic:

Another Like system is Pocket Pandemic. It lets you infect the world with an upgradable virus, and has an online mode where you can infect real people instead of just NPCs (non-player characters). Because the app is privately owned I could not determine exactly how the system was put together hardware wise, however I can guess there’s a server but most of the data is kept local on the phone. The cost of this system is $0.99. I would say that the system is in direct competition with ours, however the online multiplayer mode has failed terribly and use has dropped to almost zero. The system differs in that it does not use location data to track people and is not based on player to player locality. The nice thing about this system is that it looks nice and is using a previously developed concept taken from the flash game Pandemic. The bad thing is that it heavily relies on users to make the game work well, with no users, there is no game, which is its current state. From this system we took nothing purposely, however some similarities include the ability to infect and track your infection globally, along with the ability to choose different viruses to infect other people. Our system will improve upon this idea by implementing a system of NPCs which move around at random which act like players, allowing our system to still be player driven, but without the worry of it being useless if nobody is playing.

# Cost Analysis

Estimated cost for the development of “Outbreak” takes in many factors: Cost for developers, tools, art, and web server hosting. To keep costs at a minimum there has been donations made to help development push forward. Tammy Murakami-Baxter, professional artist out of Lafayette, Indiana, has agreed to donate time and a piece of customized art to be used as our title page (Anthromalia). The tool required to develop our application is known as xCode. This tool is normally provided by Apple with the purchase of a developer’s license, which ranges from $99 to $299 per year (Apple Developer). Apple acknowledges Oregon Institute of Technology as a University Program in which they provide free developer licenses to students looking to develop on the iOS platform. Because we, iGeekDevelopers, are affiliated with the institute, we are provided developer licenses by Professor Jay Bockelman of the Portland West campus. The type of web server used for this application all depends on the scope of the application. The current scope of the application is small, between two and four phones. Because of the small scope, we can use Windows-Apache-Mysql-PHP (or WAMP) server. This is an open source program which allows the building and hosting of a web server for local and small use access that can be stored on a PC. As the application grows, this server will need to be transferred to a separate hosting site. With those items provided, the cost of development saves in the range of initially $539-$1699. This cost does not include the monthly recurring cost of hosting, just the initial price (Web Gator).

The costs that will be unavoidable will be the cost of the developers as well as an iPhone to be tested on. An iPhone 4S equipped with the iOS5, at its cheapest, is $199 (iPhone Store). The development process includes: design, coding, testing, production, and documentation throughout. Our release of “Outbreak” is currently planned for late April to early May 2012. The amount of man hours that will be used to go through the previously explained process will be in the ballpark of 1000 - 1200 hours. This does not take in possibilities of setbacks. This does, however, take into consideration, on top of the previously defined process, learning the Objective C language to the extent of our code, debugging, presentations, etc.

After the release of “Outbreak”, the only maintenance that will be required would be: upgrading the web server, clearing unused profiles, and possible upgrades to the program. Upgrading the web server for “Outbreak” would cost in the range of $139-$299 (Web Gator). Clearing the database of unused profiles in order to keep speeds quick for the user and small overhead on the server would take roughly 1 to 10 hours depending on how many users have registered a profile. Upgrades to the program currently have no estimated cost in hours because it is dependent on what the upgrade is as well as how in depth the upgrade will be.

The benefit for our sponsor, Folium Partners, is that “Outbreak” has the potential for profit. The game is being designed to be free; however there are in-game purchasing options for more enhanced play. Social media, such as Facebook, will also be integrated into the game in order to spread popularity. With over 800 million active users on Facebook (Facebook), “Outbreak” is sure to multiply in number of downloads which brings the chance of multiple users purchasing the in-game options.

# Final Argument

Due to the systems gaming front-end with the research based back-end, it will be both, entertaining for the end-user playing with the system, and priceless for medical institutes, such as the Texas Biomedical Research Institute’s Department of Virology and Immunology, looking to track virus propagation. Our system improves on the system “Bump” by making the gaming/simulation aspect. Also, it improves on the system “Pocket Pandemic” by implementing a system of NPCs which move around at random which act like players, allowing our system to still be player driven, but without the worry of it being useless if nobody is playing. In summary, our system is better than existing systems by the upgrades we have planned that goes above and beyond what other programs have at a cost effective rate which in turn will be cost effective to the end user.

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