CrowdControl

Business Plan

Bowtaps

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Executive Summary

Bowtaps is a software development company focused on technological innovation. The company aims to provide mobile solutions that alleviate the stresses of modern life. Through innovation in mobile technology, we can create products that will change the way users go about their daily lives.

Our flagship product is Crowd Control, a mobile application designed to ease the experience of going out. Crowd Control will accomplish this tough integrated group messaging, GPS mapping and group status updates.

Currently there is nothing on the market that meets the same criteria that we are implementing. As we will cover, other apps that already exist only implement one key feature of our app, while Crowd Control has the functionality of all its competitors in one place.

Our initial market entry plan is to keep the app free to download in order to lower the barrier of entry for users. Sponsored ads, or "suggestions" will be our primary revenue source. Suggestions are a way to give users ideas of for possible events for their group to attend around them.

Ad space will be sold based on a the population of users in the area. With this being said initially there is not a steady price for ad space and will be calculated based on how the user population grows in the area.

We chose to distribute the app for free to have an easier entry to the market. With Crowd Control being free, it allows for more users to obtain and use the app without having to make an in store purchase. It is possible to increase the price from free to something under $5.00, depending on the growth of the userbase.

In the app market, especially as a start-up company, the entry into the market is crucial. With no other apps to back us with funding, we need to have our user base grow as fast as possible. When the user base is established it will allow us to decide on possible additions to the app, as well as making pricing rates for advertisers easier to calculate.

As our user base dictates our finances, our financial plan is at a minimum, for funding the development and initial launch of Crowd Control. The server we are using allows us to keep a pricing plan that is free for smaller amounts of usage, then increases as our usage increases. Pricing increases as our usage exceeds one million unique server requests per month, which is ideal for development, but must be maintained in release.

As this document is a precursor to the app release, items in this document are subject to change.

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General Company Description

2.1 Company Summary

Bowtaps is a software development company focused on a complete user experience. The company founded the mobile application Crowd Control. As a start-up company we have a close connected group of people that have the shared goals of changing how people use mobile applications for the better

2.2 Mission

Our mission at Bowtaps is to develop innovative mobile software applications to provide solutions to inconveniences that trouble the everyday user. With our software we plan on changing the mobile environment by creating applications with easy to use and intuitive interfaces with reliable services for everyday use.

2.3 Objectives

- Generate revenue
- Provide users with value added user-friendly applications

2.4 Keys To Success

- High quality and innovative development skills
- Strategic planning
- Rapidly gaining users and maintaining growth
- Reliable technology

2.5 Company History

Our team consists of five employees made up of undergraduate Computer Science students from the South Dakota School of Mines & Technology.

Charles Bonn:
Charles Bonn founded the idea of a mobile application that would help locate and manage groups of people; this idea grew into Crowd Control. As the CEO and Project Manager, Charles acts as the intermediary between Bowtaps and the community of app development.
On the technical side he is working with the server backend and communication of the server and Crowd Control

Johnathan Ackerman:
Johnathan is designated as our Quality Assurance specialist. He would be responsible for fact-checking the group's work and ensuring that the project fits within design specifications and complies with coding standards.
During development for Crowd Control, he will also contribute as the lead Graphical designer for android and create the android user interface experience.

Daniel Andrus: Our Lead Designer, Daniel, is responsible for creating an adaptive and attractive user experience for Crowd Control. He will also be with collaborating with Evan Hammer and Charles Bonn on product and company branding.
As development begins he will be working with the iOS user interface experience.

Evan Hammer:
In charge of Sales and Marketing information, Evan keeps track of and coordinates expense and revenue flow related to the company. Evan also provides a unique and useful perspective on our target demographic with his prior job experience. He will work with local businesses and events both to promote our product and to advertise on our platform.
As development begins he will be concentration on creating the backend for iOS.

Joseph Mowry:
Joseph is in charge of designing the data models supporting Crowd Control. With the database being a key feature he will design and implement key features that will allow Crowd Control to be a versatile and efficient application.
As development begins he will be concentrating on the backend of Android development.

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The Product

3.1 Introduction

Crowd Control is a mobile application designed to "ease the experience of going out." Crowd Control seeks to provide users involved in nightlife events, concerts, festivals, and any other group activities, mobile technology to add value to their overall experience.

3.2 Third Party Requirements

This application is designed to be a background tool. It has to handle importing and exporting messaging and GPS data to and from the user. It has to keep this information up-to-date as well as quickly accessible. It also has to store this information in a safe and secure way. For the side being developed in Android. We have handled the following problems though the use of services, and the UX design of the app. For storing the information, we are using a back-end service called Parse. Parse encrypts all of its data and gives great functionality to a database. Another service being used for the messaging, Sinch. Sinch also uses encryption to protect app-to-app messages. The goal of our UX is to make it so that the user the doesn't have to think about the about. We accomplish this by implementing a one-time log in for the user. Another way we will be streamlining things is by keeping the app at the group screen when launched when the user is in said group.

Parse

Parse is a back-end database service that is the backbone of this app. The entirety of its database is encrypted for our users protection. Inside Parse we are using several tables. These tables abstract user information so that even the displayed information is limited to protect the user.

Sinch

Sinch is a back-end messaging system. It provides encrypted device-to-device messaging. Through Sinch, we will be able to maintain a more stable messaging platform.

3.3 Developement Requirements

An important question we need to ask ourselves right away is what type of application we want to develop. The two basics types to choose from are a native version and a cross platform development. The following information pulled directly from `uxmag.com` will outline the differences, strengths, and drawbacks of both types. A native app is one that is built for a specific platform, such as iPhone or Android, using their code libraries and accessing their available hardware features (camera, GPS, etc). A cross platform compiler, such as Xamarin, allows for simultaneous development on both platforms but does have its drawbacks.. Let's explore the pros and cons of both approaches.

Native App Strengths	
Speed.	1.1 Native apps tend to be faster and more responsive. Because the code that runs the app is stored locally on the phone, there is no time spent waiting for static content (such as images and text) to be downloaded from the web. While dynamic content may still need to be accessed from the web, it's an improvement over the web-based model in which everything needs to be downloaded each time.
Local Storage	1.2 Native apps can run asynchronously, meaning dynamic information can be stored locally on the phone temporarily and synced with the central web-based server later. While new technologies and features (such as those in Xamarin) will allow for this to also be done in cross platform environment it is not as reliable as native.
Killer Features	1.3 Going with the native app approach gives you access to that platform's hardware features allowing interesting functionalities such as taking photos, accessing GPS information, making phone calls, leveraging near field communication (NFC), etc. Because web-based apps are platform agnostic, they do not have access to the device's hardware features.
Native App Draw Backs	
Coding	2.1 The biggest drawback to developing a native app vs. a cross platform one is that a separate code base must be created and maintained for each individual platform. For example, if you decided to initially build an iPhone app, you would have to design, code, and deploy an iOS app to the App Store. If you then decide down the road that you also want an Android version, you will have to redesign the app for the Android device, code and deploy it to the Android app store—likewise for other platforms. From a development perspective, the code bases are two entirely different languages and will have to be completely rewritten simply to mimic the original app's functionality.
Cross Platform Strengths	
Single Solution	3.1 The biggest upside to a cross platform development approach is, of course, the biggest downside to a native one. When developing a cross platform you are centralizing your offering. Single-source means that there is a single version of the code base that all users across all platforms access and use.
Single Code Updates	3.2 With the language being written in a single language allows for faster updates and new features to be added.
Cross Platform Draw Backs	
Hardware	3.1 With cross platform development does not always properly implement the features of the native language. For the things that require specific native code you have to create translators to go between the cross code and the native code.

Our Decision

Both approaches certainly have their share of benefits as well as drawbacks. A long-term strategy would seem to favor web-based over native apps, but no matter which approach is taken, a well-orchestrated user experience is the best defense in the rapidly evolving world of mobile platforms and devices. We have decided to use the

native approach because it allows for a more

3.4 Product Description

Crowd Control is a mobile application, which aims to add value to the overall experience of event goers though group management, integrated group messaging, and GPS locations. All of these features will be bundled into a easy to use mobile application that allows for everything your group needs to know to be in one location at all times.

3.4.1 Overview

The application was built to serve three primary aspects of crowd control:

- Event-based group management
- Integrated group chat
- Opt-in periodic location updates (Detailed)

3.4.2 Features

Group Management:

The application will allow users to create temporary groups with known and unknown users. The groups will disband after an event is over, allowing a more dynamic experience.

Group Messaging:

The mobile application will feature an integrated messenger, which removes the need for users to resort to third-party services to communicate with group members. Along with third party messaging apps (ones that are outside of the app) it allows for ease because it eliminates the issues associated with group messaging such as, cross platform messaging, cross carrier messaging, and time stamping issues.

GPS Tracking:

Many third-party applications use the GPS feature to help track other users. Our GPS tracking is designed with groups and battery life in mind. Our implementation would be less demanding on the users' batteries by only sending location updates at customizable time intervals or when requested. Because the groups are temporary, tracking stops after the group is disbanded.

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Strategy and Implementation Summary

The initial release of Crowd Control will be in conjunction with local businesses in the Rapid City and Black Hills area. This will allow those businesses to gain promotion from our app, and widen our user base.

4.1 Market Strategy

As there are many alternatives to our product, our primary mission is to show that Crowd Control can be the all-in-one package that users will need. Since no apps currently encapsulate all the things that our product will, it is important for us to play to our strengths.

We will be working closely with local businesses to help promote events and use those events as opportunities to showcase what our app does and why Crowd Control is their next necessary tool when going to these events.

The Rapid City/Black Hills area is perfect for an initial release, as it has a large tourist influx and hosts many local events in and around the hills. The spaciousness of the area is another opportunity to showcase our GPS location features, and help validate that, if this app is in a larger city, it will scale well.

It is critical to keep the relationship with businesses strong, as this is one of the features that will set us apart from our competitors. Many different services that do focus on event management, don't promote businesses.

4.2 Sales Strategy

Crowd Control's largest barrier to entry (as is with most mobile applications), is the price; our app must remain free to retain the largest amount of users, as most people will not download an app if they have to pay for it beforehand.

Since Crowd Control will be free, revenue will come from the connection we have with businesses and different event coordinators. Our in-app suggestions to the user's (sponsored by businesses) will be the primary source of revenue, as this will connect our users with our sponsors.

4.2.1 In-App Pricing

Although Crowd Control is a free-to-download application, users can purchase access to customized styles and other cosmetic enhancements, such as layouts, emojis, and icons.

Table 4.1: Premium Features

	Permanent Group Member Double	One-time 5 member increase
In-App-Purchasing	Buy once: $5.00	Five more members per $1.00

Table 4.2: Advertising Model

	Price per 1000 impressions
CPM Pricing	$3.00

Additionally, since the the maximum number of people allowed in a group is 8 people, users can choose to make a one-time purchase to double the capacity to 16 people, for the lifetime of their account. To further expand group sizes, users can purchase instant group capacity upgrades to expand beyond their current limit. For example, if a user wanted to host a group of 25 people but their current limit is 8 people, they could purchase the instant group capacity upgrade. This would extend their capacity to 25 people for the duration of the group. After the group disbands, that capacity will be reduced back to their original capacity. The group size pricing will increment by 5 people at a rate of $0.20 per person.

4.2.2 Advertisement Pricing

Our advertisement model is based on a CPM (cost-per-thousand impressions) model. According to `marketingterms.com`, the total price paid in a CPM deal is calculated by multiplying the CPM rate by the number of CPM units. For example, one million impressions at $10 CPM equals a $10,000 total price. This illustrated in the example below:

$$1,000,000/1,000 \text{ impressions} = 1,000 \text{ units}$$
$$1,000 \text{ units } \times \$10 \text{ CPM} = \$10,000 \text{ total price}$$

Using the CPM model, our advertisement prices will scale from the number of users in a given area. We don't currently have a set CPM rate, but plan to start around $3.00.

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Personal Summary

5.1 Personnel Plan

As our team consists solely of developers, we are able to evenly split tasks to one another, depending on necessary feature sets and other constraints that may come up in the product's development and testing phases.

In effort to keep investment costs low, each of the five developers in Bowtaps has elected to not take a wage that exceeds our revenue flow. This, of course, means that no wages will be taken for the entirety of the product's development and pre-release, and possibly for a time into the full release phase.

Market Analysis

1 Market Segmentation

Market segmentation is a marketing strategy, which involves dividing a broad target market into subsets of consumer, businesses, or countries that have, or are perceived to have, common needs, interests, and priorities, and then designing and implementing strategies to target them. Market segmentation strategies are generally used to identify and further define the target customers, and provide supporting data for marketing plan elements such as positioning to achieve certain marketing plan objectives. (Wiki)

In order to understand a very diverse market, analyzing the demographics of the market is very helpful. The target market for Crowd Control is young adults, between the ages of 21 and 29 years old. The following information will validate the reasoning behind the company's choice of target market

2 Demographics

According to a survey by RJI Mobile in 2014, 53% of smartphone owners are male and 47% of smartphone owners are female. The average age of male smartphone users is 41. 24% of male users are 55+ years old, 35% of male users are 35-54 years old, and 41% of male users are 18-34 years old. The average age of female smartphone users is 42. 25% of female users are 55+ years old, 38% of female users are 35-54 years old, and 38% of female users are 18-34 years old. The following chart breaks down smartphone market share by age, operating system and gender.

According to Google (Appendix XXX), age groups 18-24 and 25-34 tend to notice mobile advertisements more than older age groups, which is good news for our sponsors. The target market fits our app well, due to the likelihood of user interaction with sponsors. In order to stem growth, we need to promote as much interaction between our users and our sponsors as possible.

Our team will be very selective early on when choosing sponsors for our mobile app. In order to make sure the app promotes growth, our team needs to make sure we understand our customer's interests and income so we can't tailor the app to our target market.

According to Pew Research Center in 2015 smartphone ownership is highest among young adults with high income and education levels. In terms of education level: 52% of HS graduates or less own a smartphone, 69% of people who took some colleges course own a smartphone, and 78% of college graduates own a smartphone. It terms of income level: 50% of people that make $30,000 per year or less own a smartphone, 71% of people that make $30,000-$49,999 per year own a smartphone, 72% of people that make $50,000-$74,999 per year own a smartphone, and 84% of people that make $75,000 or more per year own a smartphone.

3 Sizing up the Market

The following chart was built to estimate the overall market size of smartphone devices in the United States for 2015 through 2020. According to the United States Census Bureau (Appendix XXX), the United States is projected to have a population size of 321,369,000 by the end of 2015 and population size of 334,503,000 by the end of 2020. The population will continue to increase at a decreasing rate. Considering the given projected population size at the end of 2015 and the given projected population size at the end of 2020, the yearly population percent changes were assumed to be: .82%(2016), .81%(2017), .80%(2018), .80%(2019), and .79%(2020). The previously listed percentages were used to estimate the population size of the United States from 2016 to 2019.

According to Statista's projections (Appendix XXX), 70.1% of US citizens will own a smartphone in 2015, 75.3% will own a smartphone in 2016, and 79.7% will own a smartphone in 2017. Considering the users projections from Statista, the following assumptions were calculated to estimate the user percentage change in the US from 2018 to 2020: 3.5%(2018), 2.6%(2019), 1.7%(2020). The previously listed percentages were used to estimate the total percent of smartphone users from 2018 to 2020. By using the all of the previously listed assumptions the following chart was built.

Understanding the overall market size of smartphone devices is very important for strategic planning. The following chart will narrow down the data to fit our target market, 21-29 year olds. According to the Nielson demographic chart (Appendix XXX), 85% of 18-24 year olds own a smartphone and 86.2% of 25-34 year olds own a cell phone. Due to the fact our target market is for 21-29 year olds, based on the data from Nielson, we will assume, conservatively, 85.5% of 21-29 year olds own a cell phone. According to the United States Census Bureau (Appendix XXX), the United States is projected to have a population size of 22,740,000 of 20 to 24 year olds by the end of 2015 and a population size of 22,059,000 of 20 to 24 year olds by the end of 2020. Due to the fact the Census Bureau included 20 year olds in the projections, we will assume if we take each project multiplied by 80% we will have an accurate forecast of 21 to 24 year olds. According to the Census Bureau the United States is projected to have a population size of 22,473,000 of 25 to 29 year olds by the end of 2015 and a population size of 23,722,000 by the end of 2020. We can combine the projections for 21 to 24 years olds and 25 to 29 year olds to form a population projection for 21 to 29 year olds for 2015 and 2020. Considering the projection size of 21 to 29 year olds for 2015 and 2020 the yearly population percent change for the age range was assumed to be: .35%(2016), .35%(2017), .34%(2018), .34%(2019) and .34%(2020). The previously listed percentages were used to estimate the population size for 21-29 year olds from 2016 to 2019. The percentages were also used to calculate the estimated percentage of 21 to 29 year old smartphone users, starting with the base amount of 85.5%, the percent we assumed above, based on the Neilson demographic chart. This is shown below:

4 Assessment of competition

5 SWOT Analysis

A SWOT Analysis is a useful technique for understanding and identifying the Strengths, Weaknesses, Opportunities and Threats of a business.
SWOT:

Strengths

- Human Resources
- Low Barriers to Entry
- Low Startup Costs
- Low Fixed Costs
- Synergy with SDSM&T

Weaknesses

- Rapid Industry Change
- User's Cost of Switching
- Rivalry Among Existing Competitors
- Shifting Threat of new Entry
- Shifting Threat of Substitution
- Generating Profit From New Innovations
- Evolving Industry

- Financial Resources
- Physical Resources

Opportunities

- Complementary Products and Services
- Technological Innovation
- Capacity
- Forecasted Industry Growth Rate
- Many Potential Sponsors
- No Substitute Products
- Building Alliances
- Technological Resources

Threats

- Threat of new Entry
- Expected Retaliation from Competitors
- New Technology
- Radical Industry Change: from Threat of Obsolescence