

# ***CS486C - Senior Capstone Design in Computer Science***

## ***Project Description***

### **“Missions and Madness” Mobile App Game GIS Functionality**



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### ***Project Overview:***

Last year, an excellent CS development team successfully brought the **Missions and Madness** Mobile App from concept to basic function. The essential Game procedures as depicted in the flowchart below are in-place. Users can play the Game! This year, we need to add crucial functionality in order to allow the app to operate in any area. Primarily, this will include integration of geolocation functionality and database access and analysis.



### ***What is Missions and Madness?***

**Missions and Madness** started out as a “screen-free” outdoor adventure game; part scavenger hunt, part role-playing game, and part bootcamp. It is designed to teach leadership, cooperation, situational awareness, and fitness. It has been played for years using the original “hard-copy” handbook and physical game materials. I invented and designed the Game based on high-level tactical training and martial arts drills.

### ***Why a Mobile App?***

A foundational goal of **Missions and Madness** is to build and support empowered community. In order to do that, more people must be introduced to and play the Game. Translating the “hard-copy” game to a mobile app is the most effective solution to reach more people. Now that the basic procedures are functional, we must take advantage of the connectivity of the platform to push the Game further.



In order for **Missions and Madness** to fulfill its potential as a builder of community and a generator of adventure, it must capitalize on the advantages of mobile devices: Geographic Information Systems (GIS) and the vast existing databases and maps available online.



### ***New Features and Fuctionality:***

Now that users can follow the Game's procedures on their mobile devices, facilitating the cumbersome pregame prep is the next hurdle. In the "hard-copy" Game, players must manually fill out about 12 different destinations that the team will be travelling to during the game. We need the App to perform this function wherever the Game is being played.

- 1) The App must utilize GIS to locate and designate the playing area.
- 2) The App must refer to appropriate existing databases of publicly accessible places of interest, public artwork, local businesses, sites of cultural significance, and such.
- 3) The App must process and organize this data according to proximity, category, and distance from each other.
- 4) The App must automatically fill in the in-game destination fields. A map may also be displayed.

### ***Projected Experience:***

The new functionality will allow users to more easily play the Game anywhere. If you find yourself in a new town, you can quickly populate the necessary destinations even if you know nothing about the area. Instead of manually looking up a bunch of local points of interest to visit, the App does it for you. Before you know it, you'll be exploring all the cool sites in a new town.

Imagine you are on a business trip to downtown Boston. In your time off, you'd like to play a game of **Missions and Madness** with a few of your associates, but none of you are familiar with the area. With the App's new "Automatic Objective Locator" feature,

the **Missions and Madness** Mobile App will populate appropriate local physical locations into the game. Without cumbersome front-loaded research or regional knowledge, you and your team can immediately start exploring Boston and enjoying the **Missions and Madness** experience.

### ***Stretch Goals:***

After this GIS functionality is integrated, next steps include.

- 1) Random “Contact” alert.
- 2) Facilitate online sharing of session experience, stats, maps, and adaptations.
- 3) Access to demonstrative video clips and other materials including Field Manual ebook.
- 4) Port to Apple platform.
- 5) Improve GUI.
- 6) Shop.

### ***Knowledge, skills, and expertise required for this project:***

The Development Team will need to know how to navigate the existing program that utilizes Unity, SQL, and C#. Additionally, any utilities required to implement and access GIS/GPS functionality, Map APIs, and online databases will be necessary.



### ***Equipment Requirements:***

In order to play-test the App, the team will need to gain access to an Android cell phone. No other equipment or software will be required other than standard development platform and software/tools freely available online.

### ***Software and other Deliverables:***

Proof of successful database interaction using freely available databases. The destination fields from at least three novel areas should be swiftly and appropriately populated and game-tested. New functionality should be testable on Android device.



**Missions and Madness** is an amazing game that provides life-changing experiences for participants. Making the Game available on the

most ubiquitous platform in history will allow almost anyone to play anywhere, changing the world for the better! Join me on this exciting and worthy mission.

Please take a moment to view this Highlights video on our YouTube channel:

