

Computer Science and Engineering, University of Nevada, Reno

BrainZ & GainZ

Team 14

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## **Abstract**

Team 14's project will be to create a mobile runner style game using the Unity3D engine. BrainZ and GainZ will take place in real world cities and will be modeled accurately to reflect a realistic but apocalyptic time. The significance of the project is to create a successful mobile game that team members can use to showcase their skills to possible future employers while making some monetary gains in the process. The team plans on designing models of Reno, Las Vegas, and San Francisco for initial release and will implement all necessary player, enemy, level, and GUI controllers to create a fully functional and successful game.

## **Project Description**

There are three main goals that the team would like BrainZ and GainZ to accomplish; our game will be playable with at least three levels upon release, receive at least 2,000 downloads between the Google Play Store and App Store, and be fun and intuitive for a gamer of any skill level.

Understanding our users is key to developing a successful game. There are four main classifications of players detailed by the Bartle's player types: achievers, explorers, socializers, and killers. Achievers focus on winning in the game, explorers like to experience all a game has to offer, socializers like to interact with other players, and killers like to impose their will on other players (Despain). Team 14's intended users are casual gamers which we feel fits the achiever and explorer player types. Most people that play games on their phone are casual gamers to begin with, so by targeting those people the team feels that this will help us reach our goals. The way our team is going to achieve this is by creating controls that are very intuitive so that almost anyone can pick it up and play. By using the touch screen on a phone, users will easily be able to navigate the player throughout the levels.

The main functionality of BrainZ and GainZ is to create a level based runner game that places the player in real world environments. The components to develop BrainZ and GainZ can be separated into four main characteristics: storytelling, scripting, modeling, and level design. Storytelling may be one of the more overlooked aspects when creating a game. The story is what can intrigue a person to play a game and even establish some connection or emotion. This is not to be confused with writing a story in which the team will develop a game for and vice versa. "Gameplay and story work best together when developed together. Trying to tack a story onto an already existing game design, or attempting to cram gameplay into a solid story structure, are recipes for mediocrity" (Sheldon). The scripting components of the game will be C# codes attached to the game object created that give them the logic to operate and function within the game. The modeling components of the game require no coding in C# but require combining the skills using a modeling software in conjunction with Google Earth to model cities as accurately as possible. All other game objects such as the player, enemies, collectables, and obstacles must be modeled as well. After creating all the game objects and the logic for those game

objects, they can all be put together through level design. The way the team uses these assets will determine the games success and difficulty. Creating a successful level will take many minor tweaks and changes and may be the most time consuming part of development.

## **Significance**

The reason for choosing this project is because all of our team members are very passionate gamers. By developing our own game it will assist us in getting jobs at major game development studios. If this game in any way can help us on the team achieve that goal then creating this game will have been worth it.

The innovation for our game is creating a level-based runner game, which has not been done on a mobile platform before. Along with this the team is going to be using realistic environments for those levels. Some similar products to our game idea would include games like Temple Run, Jetpack Joyride, Despicable Me: Minion Rush, and Stampede Run. All these games are endless runner games that make you keep running until you hit something and die. Our team wants to have levels that are beatable and massive so that the player must replay the level to see all the levels have to offer.

The primary market sector the team is looking to enter into is the mobile market. The team chose to enter the mobile market because this is the market for our key demographic (Magazine, 110). Since our team is creating a mobile game it makes sense that the team should market people that like to play mobile games. Since mobile game applications have a thriving selection of indie games, it will be possible for us to enter the market without large upfront cost. As seen from Fig 1, it is apparent that the mobile app revenue is drastically increasing. For our team to be able to thrive in the mobile application market, it is essential for us to profile our competitors. By researching our competitors, it will help us protect and grow our business (Publishing, 227 ). The team will hope to design a product that will allow us entry into this market and help us to build name awareness. If the team is successful it will allow the team to create more mobile applications.

One future developments the team plans to look into is using the Xbox's Kinect sensor for possible full body movement integration into our game. Instead of using your fingers on a touch screen to move the player, people will be able to use their body's as the controller. For example if the player wanted to jump over an obstacle the player would simply jump in front of the Kinect camera to make their player jump in the game.

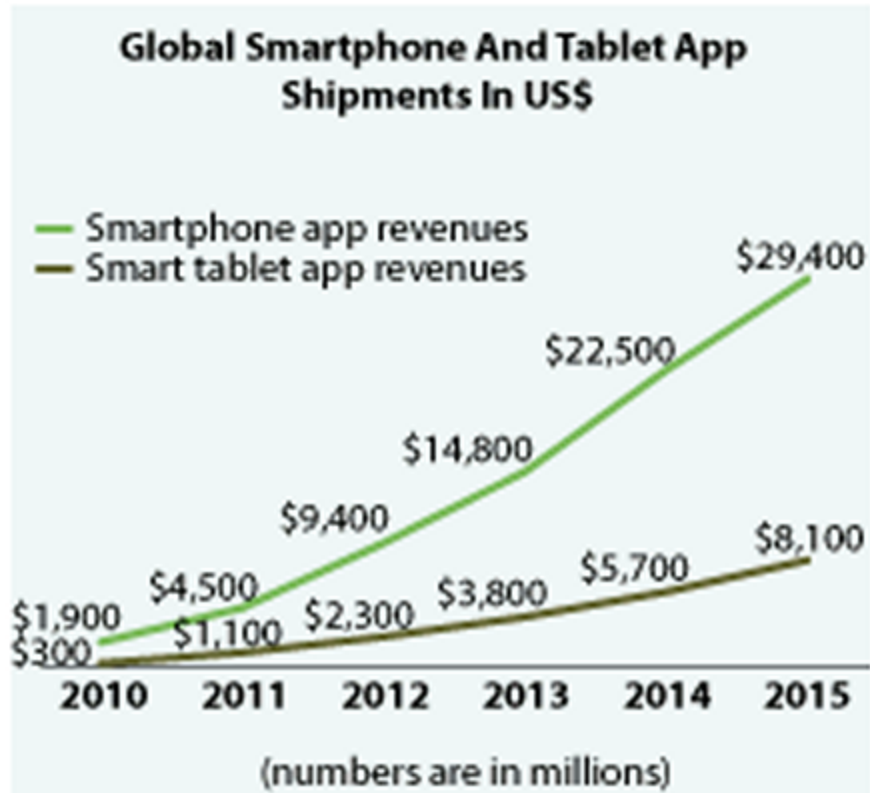


Fig 1. Mobile market interest.

### Changes and Progress since October 2013

The team has gone through a lot of different concept changes since October 2013. The first concept change that the team made was the change from original fantasy environments to levels based on real world locations such as Reno, Las Vegas, San Francisco, and other major cities. The reason for making the change to real world environments is that it would be interesting for players to be able to recognize their surroundings as they are modeled off of popular locations. With our first level being based in Reno, the team believes that the game's launch will be more successful within the Reno community. The player will then visit other major cities and this will give the team's game the ability to be recognized within other communities.

BrainZ and GainZ will now be free-to-play due to the fact that our company and game is not well known. At first the team originally planned to sell the game for 99 cents a download, but the team thought since it is our first game as a company that it wouldn't be very appealing for players to want to purchase a game from an independent studio. By making the game free the team believes that more players will be willing to try out the game and this will increase our popularity amongst the mobile gaming community. The team still plans on making some monetary gains through in app purchases such as new levels, costumes, in game currency, and themed expansions of the game.

The team has changed the idea from running around in small maze-like levels to running around in massive open environments. The reason for this is that the team wants to keep the player confined while still having the open world feel to the game.

The team has made some major developments in modeling, player physics, and input management. Currently the team have a realistic model of a portion of downtown Reno that will be used for the first level. The team has implemented basic third and first person cameras and movement for the game. Once the team has decided which view to go with, we will implement a more advanced camera and input controls for the corresponding view.

The team will be to establish our own company to develop a successful free to play game while still making monetary gains through other means in the process. The launch of the game will include three different massive playable cities such as Reno, San Francisco, and Las Vegas.

## **Project Organization**

Our game will include six major subsystems: game controller, enemy controller, player controller, light controller, GUI controller, and environment controller. Albert will be in charge of the game controller and enemy controller. The game controller will manage all scripts and game objects relating to the important data that must be stored and used by other controller subsystems such as score and life. The enemy controller will manage all scripts and game objects relating to all enemy physics, AI, and animation. Collin will be in charge of the player controller and light controller. The player controller will manage all scripts and game objects relating to all player input, physics, and animations. The light controller will manage all scripts for lighting such as time of day and fades between scenes and game objects such directional, point, spot, and ambient lights. Brian will be in charge of the GUI controller and environment controller. The GUI controller will manage all scripts and GUI text objects pertaining to menus and the user interface. The environment controller will manage all environmental game objects such as the static levels, obstacles, and items and scripts for environmental objects such as spawning and generation.

All subsystems will be worked on separately and will be provided to test other subsystems as needed. Integration will only occur when major advancements have been made in enough subsystems to create a working demo. These integration sessions will be held as frequently as necessary and be done as a group.

The team will indicate at the top of every script the current version number of the script. An entry must be made at the top of the script detailing changes to the previous version to keep all group members informed. The team's game contains large model and project files which make a code repository such

as Github inefficient. The team instead will use Dropbox to update current scripts, Unity projects, and models to be used by the team. A traditional code repository such as Github can be implemented later if needed.

## **Team Members**

Albert Wohletz has experience with scrum and agile organization methods and strategies. Albert is comfortable with user interface design and has a strong mathematics background. Albert plans to do research in quantum computing and nuclear simulation physics at JPL after graduating.

Collin Sorkin is pursuing a Bachelors degree in Computer Science and Engineering with a minor in Mathematics. Collin has designed and developed two games in Game Maker and one game using Python, Python Ogre, and OpenECSLENT. Collin looks to pursue a career in game design or game development.

Brian Catudan was born and raised in Pacifica, California before moving to Reno, Nevada at the age of 12. Brian is currently in his last semester at the University of Nevada Reno pursuing his Bachelors in Computer Science and Engineering with a minor in Mathematics. His specific skills and interest revolve around game design and game development. Brian has developed games in different languages such as C# and Python and has also used different programs such as GameMaker, Unity3D, and XNA. Brian looks to pursue a career in the video game industry in either development or design and expects his previous work and experience to be a major factor when applying for jobs.

## References

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