Picnic Defense

Lab 2 by Kevin Tsui, Brian Luu, Carl Lind III

Our Character

Little Donny is the protagonist of Picnic Defense. He is a young lad who wanted to spend a nice afternoon under the sun enjoying a picnic. However, his delicious picnic has sent a nearby starving ant colony into a food-deprived frenzy. It's Donny's job now to defend his territory and his long-prepared food.

Donny is a young adolescent with a very vivid imagination. Just like most other young kids, Donny's perception of reality is warped, meaning his imagination exaggerates what he is actually seeing. For example, a lit match turns into a large fire on the ground. This type of exaggerated perspective was done on purpose and also allowed us to have more creative freedom when dealing with Donny's power-ups/killstreaks. The greatest example of warped perspective is with the very last killstreak, where Donny tosses a bucket of water, which turns into a tidal wave, that sweeps across the screen killing almost every ant on the screen (but not all ants because that would make the game too easy).

Like most children, Donny allows his surrounding circumstance to dictate his emotions. We have used this to show the player Donny's emotional state which is dependent on how much food he has remaining. This feature also serves to show a sense of urgency for the player as the remaining food dwindles. To further give more life to our protagonist, his face animates between emotional changes. For example, Donny will blink when going from one emotional state to another (coding logic that turned out to be rather tricky to implement). But aside from worrying about the food, Donny finds satisfaction in calling in killstreaks and his face shows it in-game!

Meeting the Objectives

We believe Picnic defense not only met the objectives, it exceeded the standard expectations given the short two-week time span.

The story behind Picnic Defense is intuitively incorporated into the game without requiring the player to read a mountain of text. From the moment you start the game, you see a picture of Donny in the title screen with a nice park-like setting and a picnic basket which should lend to the fact that this game is light-hearted story that is easy to get immersed in. The story's main foundation lies around the fact that we are experience this situation from a child's wrapped perspective which lends to the earlier notion that everything is exaggerated. Again this is just another way of not just using text to convey a story. In fact we tried to stray as far away from text to tell a story and mainly use the gameplay as the narrator. This is shown by having Donny's emotional state in the direct center of the player's HUD.

Picnic Defense features a lot of great technology and features that we are extremely proud of. In terms of animation, all of our killstreaks animate in a very pleasing manner. Our protagonist also animates

based on the current state of the game. The game also features animation in several other areas including ants, food display, powerbar, waves display, and more!

We really emphasized the importance of the game's portrayal. A game that functions well with little emphasis on the way it feels (graphics, sound, and aesthetics) is a drastically different game than one with the same function with a heavy emphasis on the way it feels. We stuck to this principle of making the game feel good from the largest to the smallest details. For example, instead of having a generic rectangle to represent the powerbar, we created an empty battery to represent the powerbar that has a colorful way of representing how much power the user has. Another example would be instead of sticking with stagnant images representing the power-up icons, we had the icons light-up when the user has enough power to buy one. It's the little details such as these that turn a good game into a great game.

Building off of the idea of making a good-looking game, art ended up being the largest part of this project. Interestingly enough, more time was spent making and implementing art than actually coding the game. The vast majority of the art was hand-drawn (as hard-to-believe as it sounds) using software including Adobe Photoshop and Adobe Illustrator. Some art was taken from the internet (and given proper credits in a "credits" class in our greenfoot scenario) but most were heavily edited to match the style of the game. The biggest outside contribution to our art scheme that was not hand-drawn were some of the powerups/killstreaks including the fire animation, lightning bolt animation, and the spark animation all of which were provided by Pow Studios.

Part of the core gameplay mechanic is the Ant AI which could be the most verbose part of the code. Our ants move in a slightly randomized direction with a general goal of heading towards the food in a randomized manner. But in order to make the game balanced, we made it so the ants had to stay on the food for a certain amount of time before they could "take it", otherwise the ants would touch the food and promptly run off. Though many of these features go unnoticed in our AI, it makes a huge difference in the way the game is played.

Sound played a huge role in our game. Several hours was spent hand-picking background music to fit the style and theme of the game. Several additional hours was put into combining sound effects and creating the perfect sound effect for each powerup/killstreak that would elicit the right appropriate response from the player.

Division of Work

We all played a role in the creation of the game. Without one of us, the final product would not be what it is today. The following will briefly outline what each of us did. Understand that all of this is a gross simplification of all the work we ended up putting into this project.

Carl played a big role in setting up and managing how we were able to exchange code. We mainly used a program called SourceTree which uses git as its version control. Setting everything up where we could all easily push and pull code with minimal conflict is something highly valuable and underrated to the success of this project. Carl was able to help in a lot of the logic and art behind the food and the 'game over' screen which was very valuable to the game. He also established the framework for animation.

Carl was our main art researcher who was able to find the most important external art resources that we used in the game including the animations from Pow Studios!

Brian was one of the main code-developers of the project. Brian spent much of his time implementing many core aspects of the game, including the game's main progression. This includes features and implementations that allow the player to progress through screens (Greenfoot Worlds), wave progression of enemies, winning/game-over progression and logic, and all other related code. Brian also worked on added multiple types of enemies into the game as well as the logic in how they spawn.

Kevin was first and foremost the lead vision for this project. He helped lead the team to create what Picnic Defense is today. Kevin was also the team's coder, artist, and sound-designer. Kevin coded a lot of the game's core functionality including coding the Ant AI and hitbox, powerups/killstreaks, Donny's facial expressions, animations, and more! Kevin spent a great amount of effort hand-drawing most of the art seen in game (which was probably the most time consuming) including the title screen, world backgrounds, all powerup-related art, and all HUD-related art just to name a few. Kevin also took on the sound-design aspect of the project. He hand-selected every background song for each situation and use the program "Audacity" to design sounds for each of the scorestreaks.

The work breakdown is just a brief insight into all of our collective efforts. A collective total of 130 hours was spent into the production of Picnic Defense.

Response to User Feedback

We preserved the game from the public until the vast majority of the features were implemented. Our main feedback from the game was filled with high praise and astonishment for how much was done in only two weeks. One of the most important pieces of feedback we found was that users had very little trouble picking up the game even without a "tutorial" (which wasn't set up at the time). According the users, the game was "very intuitive and easy to pick up!" which was music to our ears. Users also like the fact that the game is very minimal in text, "the less reading, the better." Users particularly praised how the powerup icons lit up when they had enough power to buy them. It was a small nuance that makes a whole lot of a difference in the game.

The constructive feedback we did receive including mainly balancing issues. The game was extremely hard for those who had never encountered the game before. As a result we have reworked the balancing of the waves. We noticed the lower-costing killstreaks/powerups were not being used much which also led us to rebalancing the earlier waves to make the cheaper powerups more valuable.