Research and Analysis

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For Project 2, our team choose to create and add onto elements from many recent, and some old, ball-rolling games. As many in the industry have noticed, ball-rolling player is a really popular topic in game market. With the advent of the accelerometer, ball rolling games play an important role in the mobile game industry because of the role of forces and physical properties. However, the pc and mac market is still remotely untaped in the use of these physics mechanics. Not many similar games exist. Many major games coming out are purely meant for popular gaming consoles and pcs like recent video games such as Battlefield or the Witcher 1, 2, 3. Main characters in ball rolling games never try to attract players by its realism and vividness, instead, these games more often apply different and creative mechanics, as well as well-designed architecture and background. The basic control is usually really easy for beginners but the difficulty of game increases as the player surpasses levels and usually beyond players', especially new players', expectation. Balance is almost the most vital goal for players, and the design of game control sometimes make a huge difference on difficulty and playability from the perspective of players. Interactions between the ball controlled by the player and other active objects are usually plentiful. Based on some real and virtual physical properties, these games tend to create a novel world, sometimes with fun and excitement, sometimes with calm and quietness.

In this paper, we will go through 3 typical ball-rolling games, Ball Resurrection, Super Monkey Ball, and Marble Blast Gold.

Ball Resurrection

Ball Resurrection is a typical ball-rolling game prepared for mobile devices. Arcades, stone floors and puzzles create a solemn atmosphere, where a lonely and errant ball needs some proficient and accurate control to go through maps provided by the designer.

Like most mobile phone games of this era it intended to use the relatively new mechanic, a built in accelerometer. The whole point of this particular game is to balance the rolling ball and avoid obstacles which is especially difficult when using the accelerometer on a mobile phone. Compared with arrow keys on PC, an accelerometer introduces more uncertainty. In other words, it raises the level of difficulty for players. Since, the player may assume there are at most 8 directions while using key arrows, (4 single key arrows as well as combinations such as up-left or down-right) it offers more predictability in movement rather than the accelerometer which is only able to detect the flipping degree of the phones accurately some of the time. The other inaccuracy may be sensitivity. Further, the flipping of the screen also makes it harder to concentrate on the ball. Some players, may not enjoy a game with this style. But for many eager players, this style did introduce something new and attractive. We need to mention that the ball can also be controlled by touching arrow key buttons on the screen if the player prefer to, it is a good choice for some people who dislike the sensitivity and unpredictable mechanic when using accelerometer data,

However, the game loses it's appeal as a game when using the touch buttons, in my opinion. We decided the use of this particular mechanic is not useful to us since balancing is not as interesting using keys.

Similar to most typical ball-rolling ball, Ball Resurrection is filled by more or less interesting elements and mechanics combining real physical movements and objects and more unrealistic ones. Platforms or boards don't tend to move or shake in this game, there are some boards with holes, some boards with an uncomfortable slope. Also, rails are used frequently but not excessively. Most elements in this game tend to keep static rather than moving and shaking to provide more excitement. Static elements dominate the game, which is a choice neither superior nor inferior to any other choices. When combined with classical music, the choice, however, makes the theme based on an ancient stone structure more complete. However, our game mechanic heavily relies on the physics of other objects in the scene as well as changing or manipulating physics in the environment.

The Camera doesn't rotate according to the ball's moving direction, instead, it can be decided by the play during the game by pushing buttons at the left bottom. Personally, it is my favorite mechanics in Ball Resurrection. The design decrease the possibility of making player dizzy while it also gives the player more freedom to choose a comfortable angle. We may attempt to implement this level of freedom with camera movement in our own game because it reduces dizziness so well. Either this or the bird's eye view because it also does a great job reducing dizziness.

Boxes lie around the whole map, which are designed to be barriers on the path. The ball needs to push them outside the path to continue the travelling. The rewards, instead, are assigned on purple shining particles. The particle system are also looks splendid in some degree when the ball gets the reward particle.

Noticing that there are some similar games use single monorail to make the balance even harder. Ball Resurrection, possibly due to its control system design, doesn't introduce such elements. Based on our limited personal experience, balance on a single rail is almost impossible with the control system provided in this game. Which is another reason why centralizing a game on a particular instrument is not as interesting. Balancing is an element we would like to add but used with discretion.

There are some balls similar lying around the map, which also cause some problems for players. It is a really simple but amazing idea to use balls to interrupt the major ball. Our game in some ways uses a similar concept with static balls but the completion of the game is more heavily dependant on interacting with the static object.

The background with beautiful and vivid cloud and sunshine is also a lovely part of the game. Ball-rolling games sometimes are expected to complete an important task: create a new better and pure world where the players can enjoy the experience travelling around the virtual world in the game. Ball Resurrection completed this task largely relying the background. The clouds and the lights themselves are also exquisite enough, providing some extra fairy tale feeling into the ancient and classical theme.

Super Monkey Ball

Super Monkey Ball, compared to the game we discussed above, is a rather active game, with lots of board shakings, waves and moving. It is a series of arcade platformer games developed by Amusement Vision and distributed by Sega. There are four characters in the game: AiAi, MeeMee, Baby and GonGon. The game appeared in Japan in 2001 as an upright arcade cabinet called Monke.

The Camera follows the “Monkey ball”, always towards the direction the monkey ball goes. This creates a very dizzying environment for players. If an accelerometer were also added into a game, then camera movement can get out of control when nontrivial operations are needed to complete some difficult tasks. But Super Monkey Ball chooses a really splendid camera control design, which is accompanied by shaking boards and energetic music. When watching game video or playing the game itself, it is still a bit dizzy, but the frequent shaking and the rhythm of music in the game somehow cover the dizzy feeling. I guess it is just because in a more energetic situation, people will accept the fast camera switching. This is something to take note of in our own game.

Small map at the right bottom corner is another reasonable design to reduce the dizzy camera effect. It helps the player recognize the exact position in a larger range. It is not a very usual element for ball-rolling games since usually, game designers prefer to let players explore maps with most things unknown. However, considering the whole setting of the game, specifically, the shaking and active frames, the navigation map is more than reasonable. However our game is mostly supposed to be a fairly small environment per level and meant to be more of a physics puzzle than an arcade platformer.

This game is unlike our game and Ball Resurrection mentioned above because the whole environment moves rather than the ball. An interesting game design aspect where the ball is affected by gravity and the moving environment rather than the arrow keys or accelerometer.

Rewarding objects in this game is very common. The banana, however, canter to the “Monkey” theme. No matter if it is a stereotype that monkeys always eat banana, this banana setting is natural and easy to be acknowledged by most players. In our game we do have the concept of consuming objects throughout the game. We use the concept of fruit as well but we have general fruit laid out across our platform and they look a little more like oval peaches.

Once again the main element in this game is balancing and it really works for this game because you must move the entire world to get to where you want to go and that is not trivial whether you are using arrow keys or your mobile device’s accelerometer. Though again, our game does not take balancing into account as much except pushing another marble around but balancing isn’t the main element within the game. It’s not the driving force like Ball Resurrection or Super Monkey Ball.

Marble Blast Gold

This game is probably the most similar to our game. This game really influenced how our game has turned out so far. When we started out I didn’t know of this game's existence. We started out with a an idea nothing like the current idea. It was originally a 2D game heavily reliant on changing gravitational

field within the game to solve puzzles. However, after making gravity tubes and turning the game into a three dimensional world, the entire dynamic of the game changed and the original mechanics no longer worked. So we started making a 3D world where you could manipulate the physical world to maneuver through platforms with an end goal making these manipulations a primary part of our game.

After attempting the research paper however, this had to change. I realized that this was all too similar to the game Marble Blast Gold. This game in particular use power ups to manipulate it's physical abilities. There a fans that lift the marble to high points much like our tubes. There is a gravity manipulation element that you must use in order to progress through the game, something I had planned on implementing in or 2D version and was transferring to our 3D version. The is an end platform for the game as well, something we had implemented similarly. There are also items that you can collect for points. In this game they are gems, something we too had added into our game in the form of fruit.

In order to make the game different enough from this other marble game, we made our game closer to an actual game of marbles by switching the dynamic to focus more on moving other static marbles. You must get the marble across very difficult mazes to maneuver all while balancing your marble character.

Also, the physics in Marble blast gold are very off making the marble seem more like a super ball bouncing around a floating world . Our game physics are more finely tuned with one of us spending several hours making the physics just right for navigating this game. In Marble Blast Gold, you can essentially go through mazes without having to go through the entire maze. You can essentially cheat your way through the game. I didn't like that particular aspect of Marble Blast Gold.

Marble Blast Gold is also timed whereas our game does not take time into account. Instead opting for a more tranquil and paced feel to the game. The game has an energetic feel without having to compete against a clock.