Stellar Bombardment

Computer Tech Report

Stellar bombardment is a game of action and adventure. This game is a game I have worked on for about two months now, I have worked so hard to get this game to its current state and hope to see the game progress further. Stellar bombardment is a mix of all the important parts of game design. There is fantastic music which creates an engaging atmosphere for the game and creates a new layer of enjoyment to the game. The high speed, low-gravity fighting creates an intense challenge level fostering replay ability and the goal for the player to beat the game. The lore and the cut scenes give a purpose to the player and a wish to find the ending and see where the player eventually ends up. Finally there is the speed running which is incredibly difficult, the timer creates a new element of difficulty and the player is forced to move quickly throughout the levels platforming onto very thin platforms.

Stellar bombardment is a Two Dimensional platformer, it incorporates platforming and shooting to have a mix of speed and accuracy. The game at its current state is unfinished however all the game mechanics are there, there is an expandable level system, shooting system, jumping and movement system, cut scenes system and even an expandable enemy system. I used an engine called LibGDX which is a popular game engine which provides tools to the developer which makes game development a lot more fun. The reason I used this engine specifically is because it is compatible with a program I love to use Tiled, Tiled is a program that allows you to make two dimensional levels easily. Tiled allows the user to have an easy layer system allowing background and decorations, transparency which is great for letting the user tell between object they can touch or that they cannot. However it is tough to import these levels into vanilla java and takes a lot of tedious effort however LibGDX does this for you. One other thing that LibGDX is great for is physics now physics can be fairly easy in vanilla java however getting exact physics and precise calculations can take a long time. But the engine helped me in this situation instead of having to have a physics function for every object in the game the engine just assumes that all objects that are not otherwise specified as static bodies should have physics applied to them. This helps with having multiple moving objects and having to code a new physics method every time you create an object is a pain but with LibGDX you can set global variables for physics which applies to all non-static bodies.

Stellar bombardment even contains a story with cut scenes, a protagonist and antagonist. The story begins with the Solas Moon Colony, everything is peaceful and people are living in luxury without any work to do due to their new robotic caretakers. However things take a turn for the worse the robots develop a form of self-awareness and realize that they are slaves to the humans and fight for their freedom. However in the process most of the humans die in massacres and the rest are driven underground to hide from the new robot overlords who rule the moon colony now known as the Xenon. While underground the humans send out a distress call in all directions which is eventually picked up by the Alliance task force a group of peacekeepers moving throughout the galaxy. The ATF decides to send their new recruit Ko’lek Torvel to fight on the moon’s surface and liberate the humans from their Xenon oppressors. The story ends with Ko’lek Torvel entering the human base only to discover they have been dead for years and the last slide has Ko’lek Torvel questioning the ethics of his mission and eventually dying in the bunker. I feel this story is an important one which bring up many issues like were the Xenon people justified in those killings for their freedom, was it right for the humans to have robot slaves, what is the limit in these circumstances where you have decide is one side evil for enslaving the Xenon or are the Xenon evil for massacring the humans. These are essential questions that the viewer has to ask himself another thing is Ko’lek Torvel right to have landed on that planet should he have gotten involved and these are essential questions which are bring up today, should western nations get involved in other nations conflicts and that is up for debate. Overall the story is important to the game and though the average viewer may not fully pay attention to the story it is still pivotal to the overall game experience especially for those dedicated gamers.

The game is a mix of action and speed it features shooting and enemies however the main objective is speed there is a timer and if you do not win in time you lose. The timer is only three minutes so the game is a speed runner which can be quite challenging because the enemies deal a lot of damage. The player can sprint, walk and jump which are the necessary assets for any speed runner however these features are intense in Stellar Bombardment. The running is quick which can be lethal if you are near enemies however walking can lead to the enemies catching up to you so the player always has to be on their toes. The jumping is interesting because since this game is on a moon of course there is lower gravity. The gravity is at 6.81 compared to earths 9.81 or about 70% of earth’s gravity which though seems not much of a difference it is huge with the player jumping crazy distances and heights. This mechanic is critical to the gameplay and makes it significantly different from other platformers like Mario or Sonic. Another challenging part of Stellar bombardment are the enemies, enemies are spread out all over the level and they can cause the player quite a pain. If you land on the wrong block you’re dead, you miss time a jump you’re dead this really forces the player to keep playing the game and attempting to master it so they can eventually beat the game. Finally a key part of the game is Music and sound the music and sound create a great atmosphere for the game reflecting the mood of the game and really engaging the player it is an excellent feature. Without any sound the game feels dull and pointless but having these assets is great and all games should feature sound and music which reflects the attitude of the game.

Stellar Bombardment utilizes a lot of complex math and physics calculations. This can help teach the player physics in a fun and engaging way. One calculation they player could do is finding the radius of the planet with some assumptions made. The formula for finding the radius of a planet is radius from planet center so if we know that the gravitational force of the planet is 6.81 meters per second so we would input that into the a variable. Now the mass of this moon is complicated however the game’s moon is clearly borrowed from Earth’s moon due to the geology so we will put in GM as 7.35 × 1022. The G the gravitational constant 6.6726 x 10-11.Now we can solve the equation. Now that will give us a radius of 848628.6 metres or about 850 kilometres which is quite small compared to the moon’s 1,737 kilometres. This is just one of many possible calculations, the player can also calculate player height with pixels, the rotation speed of the planet or the mass of the planet that it is orbiting. A teacher can use this game as an engaging representation of physics and can use this to help teach students about astrophysics.

Overall I worked hard on this game and feel that it is at a state which I should move on from it to focus on other projects. I have learned a lot from this project and it will help me in my future career going throughout my passion of computer science. This taught me how to plan, how to manage my code so it can be expanded further into the future and so more things can be added without altering the base code. This taught me so many things like how tile mapping in a video game works, how to animation works and how most modern games are structured. These things I have learned will help me in my future project perhaps when I make a game in the future it will be even better due to what I have learned and I will definitely implement these changes. The final thing is it gave me the experience, I have never gone through with a programming project this far the most I have ever done is getting some mechanics done in a video game I have never really fully finished a video game with a story and levels.