Sol Survivor

CIS 587: 2D Game Overview -- Final

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# Executive Summary

Sol Survivor is a single-player top down game set in a frozen Earth. Tyreus, the heir to the Sol Kingdom, must slide his way through the dangerous Icelands in a race against time to retrieve the sacred Crystal Skull from the invincible Iceskimos.

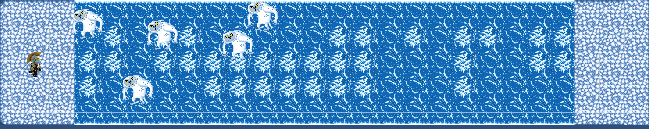
### Game Story

As a young boy, Tyreus grew up hearing stories of the Earth that once was. It was a wondrous place with many different landscapes, plants and animals. It was very different from the cold, solitary world in which he now lives. As one of the last human survivors, Tyreus is heir to the throne of the Sol Kingdom. The Sol Kingdom is a small country located very close to the equator. The kingdom is the only known remaining place to have survived the Great Freeze. The Great Freeze happened many years before when the human race became greedy and careless. They did not protect the Earth and as a result the carbon dioxide and methane emissions led to an atmospheric change which caused most of the earth to freeze over. The result was horrifying. The only human creatures known to be left are from the Sol Kingdom. The humans living in the Icelands, a small region bordering the Sol Kingdom, underwent a monstrous change. Due to chemical runoff from the remaining water and the cold weather, these humans developed a hairy, thick skin and grew to be very large. These creatures, known as Iceskimos, are growing in population and are moving closer to the Sol Kingdom. They are virtually indestructible. This year, 2061, Haley’s Comet will be closest to the earth. The pull from the comet is thought to activate the magic from the most sacred relic of the Sol Kingdom, the Crystal Skull. This skull possesses the souls of all of the Sol ancestors. A Sol legend says the Crystal Skull will keep those within close proximity of it from freezing and becoming an Iceskimo. Unfortunately, the Iceskimos have stolen the Crystal Skull and have taken it to their sacred temple deep in the Icelands. They intend to sacrifice it to their moon god – Aningan. Tyreus must race against time to retrieve the Crystal Skull. Without the protection of the Crystal Skull the Sol Kingdom, the last bastion of humanity, will become Iceskimos.

# Game Play Look and Feel

### Appearance

This is a top down game. The wintery game scene is a linear path covered with tiles of snow and ice. Sections of snow and ice alternate. The player walks on the snow and slides on the ice. Iceskimos are ever present on the ice.



### Player roles and actions

The player is the Sol warrior, Tyreus. He is evading all enemies by sliding on the ice. The player is controlled by using the left and right arrow keys. While on ice the player can only slide. The player can walk on other non-ice surfaces. The speed at which the player moves is determined by the floor surface to simulate sliding. The sliding is simulated with a faster speed.

The Iceskimos are the enemy. These Yeti-like snow creatures move in a patrol movement going back and forth at a set location. They have a set speed so that the player does not have to change his timing each time. This will help the player be able to avoid the enemy. Tyreus, the player, dies when he collides with an enemy. In order to complete his quest, Tyreus must continue to evade the Iceskimos until he makes it to the Crystal Skull.

Tyreus, Sol Warrior Iceskimo

### Strategies and motivations

The player must learn how to slide on the ice and learn the pattern of the enemy’s movement. Timing will be important. The number of enemies increase from level to level.

The player is motivated by learning techniques and timing to successfully evade all enemies while navigating the Icelands to reach the Crystal Skull. The level of difficulty increases as the game progresses.

The idea for this game is from the custom game of Warcraft Three, Slide Ninja Slide. This one-player version of the game differs from the original in several ways. In the original game the enemy moved randomly which made the game more about reflexes and luck than skill. In this game the enemy will move in a pattern and successful evasion will require both reflexes and timing. This adds a level of skill to the game. The snow spots allow a player to observe the movement of the enemy in order to learn the pattern of movement. In the original game a player had three lives. There were no checkpoints which made the game frustrating. If a player got really far into a level and died, he would have to restart all the way from the beginning of the game. With checkpoints added to the game, a player does not need to restart at the beginning if he dies near the end of the game. This keeps a player more interested in the game. The checkpoints are actually just a redo of the same level. Each redo of the level has the same number of enemies but the placement is random. There is no maximum number of lives. T

### Level summary/story progression

The story continues in the level play. As the heir to the throne Tyreus must be the one to capture the skull and bring it safely back to the Sol Kingdom. Since the Sols have no weapons to penetrate the armor-like skin of the Iceskimos, they must use their human intelligence to keep their kingdom safe from the Iceskimos. Tyreus has a special item, the Ice Gem, which allows him to slide on ice. He will be able to slide on the ice to get past the Iceskimos. This will help him on his quest to get to the Crystal Skull. His only hope is to travel through the Icelands while sliding on the ice to evade all Iceskimos. A collision with an Iceskimo will mean death for him. The quest will be long and hard, but the reward of keeping the Crystal Skull and the Sol Kingdom safe for several more generations is priceless.

The game starts with a title splash page that has three buttons: Start, Story, Instructions. When the player conquers the game, the game resets to the title page.

There are six levels. The first level begins with a smaller number of enemies of ice without any enemies so that evading techniques can be learned. As play progresses the player encounters more enemies and greater skill is required to avoid the enemy. Once the player successfully completes a first level he goes the next level. A level ends when the player walks to the edge of the last snow tile at the end of the ice. In the second level there will be more Iceskimos to evade. If the player dies on a level, the level is repeated. There is no limit to the number of repeats per level.

# Development Specification

### Hardware

The game is developed on a Windows 7 PC. It can run on a Windows-based system. No special graphics card is required. A keyboard and monitor are required for user input and game displays.

### Software

The game is developed with Unity 5.4.1f1 personal edition. C# is used for source code. MonoDevelop is C# IDE.

### Algorithm Style

Algorithms are used for sprite animation. The player movement consists of idle, walking and sliding (fast walking) . The movement of the enemy Iceskimo is walking and idle. The patrol movement pattern is created by letting the enemy walk in a specific direction until he collides with an invisible barrier. When he collides with the barrier the Iceskimo goes in the opposite direction and continues walking until hitting another barrier. The speed of the patrol movement is time-based. C# is used to implement the algorithms.

### Sound

Music accompanies game play.

### Design Methodology

Because of time constraints, a rapid prototyping oriented methodology will be used to design and implement the game. The game is designed to be simple and straight-forward since this is the developer’s first game. The developer has put forth several design concepts to others asking for feedback. This current design is the result of these reviews.

The plan is to use the Agile methodology presented in the course book by Jeremy Gibson. Pieces of the game will be prototyped, tested, and revised. Each iteration of development will add a new or improved feature to the game.

### Future Enhancements

Features that can be added to game in future revisions include:

* More levels
* More obstacles
* Non-linear path
* Items to pick up
* Ways to power up
* Difficulty modes
* Differentiate level ending tiles
* Implementing real sliding
* Varying the patrol speed of the enemies

### Known Bugs

Some undesired effects have been encountered:

* The collider for the player and the left snow edge does not work. The player initially used just a box collider but it did not work properly for the left snow or ice edges. A circle collider was added around the player’s feet. This works for the ice but not the snow.
* The player does not initially slide on ice if the player enters the ice on an upper or lower edge. Once the player steps onto a non-edge ice tile he will slide. Sliding is simulated by increasing the speed of the player. So when the player steps from snow to the ice edge and speed increases the edge he continues over the edge of the ice.

### Developer Notes

Much has been learned while implementing this first Unity game. Various implementation techniques from various sources were tried. Some worked, others did not. The experience has been both fun and frustrating, but it is been well worth the effort.