

Trace 360

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CSS 450 Final Project Proposal

Fall 2008

Game Overview

This section will introduce the basics of Trace 360, with the subsequent sections providing more detail with regard to the World, Game Play, and GUI Layout elements of the game.

Trace 360 is a remake of the hit iPhone game, Trace, but slightly modified and built using XNA 2.0. The purpose of Trace 360 is for the user to navigate a stick figure, appropriately named *Stickman*, from a starting point in the level to an endpoint without dying. Stickman can die by being hit by obstacles in the level or by falling off the map. When the level starts there is not a path between the start point and the end point, but there may be platforms or other objects (safe objects – won't kill Stickman) in the level that Stickman can walk on without being injured, throughout the level. The player must draw the path between the two points without falling off the map and without being hit by obstacles. The player can use the existing safe objects to assist it in making it to the end point. There will be at least two predefined levels of game play.

World

This section covers in detail about the world aspects of Trace 360. The aspects of the world include defining animations, object position, supporting objects, hero object, and object visibility.

Animations

Trace 360 will have several predefined animations which are either triggered by user events, such as a mouse down, or static animations, such as the status text bar constantly moving left to right unaffected by user events. This section discusses an example of each that Trace 360 will contain.

User Defined

In Trace 360, the user will be able to control a Stickman, otherwise known as a hero object. The Stickman will be able to run, walk, and jump under a user's control. The Stickman will appear to be walking if a user presses, and holds down, a movement key on the keyboard (WASD), and cause a sprint animation for the Stickman if they hold down the shift key with a movement key that causes walking. The Stickman will also appear to be jumping if a user presses the space bar; this can occur while standing still, running, or walking.

Static Animation

The Stickman in Trace 360, in order to get to the end of the level, will have to navigate through a set of obstacles, where if he touches an obstacle he goes to the beginning of the level. These obstacles can look like stars, rocks, etc. but they all have a predefined animation which cannot be modified by the user. An example of this would be a rock object where it would bounce around the screen, trying to touch the user, in order to force the user to restart the level.

Object Positioning

This section discusses how a user will be able to interact with an object, represented as a Stickman, in Trace 360.

Control

A user will have direct, and guaranteed, control of this Hero object through keyboard input. They will be able to control its position on the screen using WASD keys on the keyboard to try to move the Hero around on the screen.

Supporting Objects

Trace 360 will encompass at least two supporting objects with one of them texture mapped. These objects will represent obstacles in Trace 360.

Object 1

Object 1 will most likely represent a Star obstacle object. This object will be composed of a circle and multiple triangles. The circle will represent the center of the star with the triangles representing the edges.

Object 2

Object 2 will represent a Cloud obstacle object. This object, in representing a cloud, will be composed of several circles and a square, with the square representing the entire interior of the cloud, with the circle representing the rounded edges; it will be texture mapped.

Hero Object

The Hero Object in Trace 360 is Stickman. He will be texture mapped with a meaningful transparency blending to give the effect that he can bend, as a user will be able to control the transformation of the Stickman's legs and hips to either make the Stickman bend at the hips or compress at the knees.

Object Visibility

The user will always have control of the Stickman object (Hero). As a Hero object progresses through the level, he will encounter some boundaries of the level. Some of

these boundaries will prevent the user from moving further, overriding the user's commands and placing him back in the world, while the other ones will lead to further areas of the world a Hero can explore, scrolling the world window to follow the Hero.

Game Play

Trace 360 is meant to be intuitive and easy to play. The objective of the game is to safely move Stickman from the starting point to the ending point. The starting and ending points may be at different locations for each distinct level. There may also be platforms or other safe objects that are part of the level that Stickman can use to assist him in arriving at the endpoint.

The user will draw a path, or multiple paths, for Stickman to get from start to finish. The user will also traverse Stickman along the path that was created, by walking. Stickman can move left or right and can jump. Jumping will cause a sound effect to be played. Stickman can also bend at the knees (crouch) or bend over (pivot at the waist) to help get through tight areas. The user can define the path at any time; it does not have to be done up front. For example, the user could first navigate Stickman to an existing point in the level. They could then draw paths for Stickman to walk on to get to a safe point away from obstacles, and then they could complete their paths and traverse Stickman to the end point.

As the player draws the path, it may decide that it wishes to undo a portion of the path. An undo (or erase) option will be available to allow the user to remove portions of the line until it is back at a desired state.

If Stickman successfully traverses the level by arriving at the end point, the next level is displayed and Stickman is positioned at the new starting point.

Throughout the level there are obstacles. Some obstacles are stationary, but most of the obstacles are moving along a predefined range of motion, moving constantly. Therefore the user must be cautious about where the paths are drawn, and when they choose to traverse the path to avoid being hit by an obstacle moving around. If Stickman collides with an obstacle he dies.

There are also portions of the level where there is no floor, and if Stickman walks over these areas, it will fall to its death.

When Stickman dies, a sound will be played, and Stickman will be repositioned at the starting point. The life count will also be decremented by one.

If a level is larger than the screen can sensibly display at once, the view will scroll the level when Stickman gets 75% of the way across the screen. The same holds true for vertical orientation. The user can also zoom in or out to view more or less of the level at once.

Sample GUI Layout

Figure 1 displays an example of the GUI layout for Trace 360. The main view will display the Hero Object that the user can control along with the level he is trying to traverse in order to reach the end of the level. A user can zoom in or out of this view. In the upper left hand corner is a status bar, indicating to the user which level he is at and the current time they have taken to traverse a level. The upper right hand corner contains a second view/controller pair that displays the hero's position relative to the entire level.

Figure 1. Example GUI Display

