

The Drift Project Background

Drift was a 3D, multi-player online Snowboarding game that was proposed to compliment the silverzipper.com web site that was launched in the summer of 1999. This made sense as Silver Zipper is a leading sports apparel manufacturer that specializes in winter-oriented "activeware" (i.e. ski jackets, hats, gloves, etc.).

Beyond the desire to do something cool, developing the game itself had several purposes:

- 1) Act as a vehicle to promote the Silver Zipper brand by cultivating an online community of like-minded game players
- 2) Generate revenue through in-game advertising sponsorships and custom branding
- 3) Generate revenue from third-party technology licenses and/or customization
- 4) Generate revenue from E-Commerce transactions made from within the game

After consultation with various team members, the original budget for this project was estimated to be in the neighborhood of \$40,000.

NOTE: The game's budget was intentionally low due to the assumption that the development team would retain the copyrights to the game's core technologies and share in any advertising and E-Commerce revenues generated by the game as it gained popularity.

Although the initial design and technical architecture were created, the necessary funding was never received from Silver Zipper, so development of the game was eventually abandoned.

This particular document represents the initial draft of the game's design and user experience that I wrote over the course of a caffeine-fueled weekend. Of particular interest to readers are the sections on user registration/profile creation and game-flow.

The Drift Project Design & User Experience Summary

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User Registration Process

Account Creation

In order to register, users must create a Drift game account. Creating a game account for Drift has three parts:

1. User Downloads the Drift Client
2. User Creates a Game Account
3. User customizes their player via The Outfitting Room (detailed in the Appendix of this document)

NOTE: In order to help guide the user through the account creation process, we suggest that the area use a numbered layout - i.e. "Step 1", etc.

Downloading the Drift Client

Users will go to a special download page (URL to be determined) which will link to the current version of the Drift Client.

Using some sort of dynamic mechanism (cgi, asp, or javascript), the download page will "sniff", or check the HTTP_USER_AGENT string sent by the user's browser and determine their computer type and operating system. This is a necessary step because the Drift Client will only be compatible with PCs running certain versions of Microsoft Windows.

Those users who access the download page with a non-Windows system or a version of Windows other than Windows 95 or Windows 98 (i.e. Windows NT or Windows 3.11) will see an error message similar to this:

"We're sorry but you will need a PC running Microsoft Windows 95 or Windows 98 to play Drift.

However, just because you can't play doesn't mean you can't enjoy Silver Zipper fashions! Click [here](#) to see what we've got."

The link will take users who can't play Drift directly into the Silver Zipper site so that they can browse and/or shop in lieu of playing the game.

Otherwise, users who *are* running Windows based systems will automatically be taken to the Drift download area.

NOTE: Over 95% of the users who will attempt to download Drift will be using a PC running a compatible version of Windows so we don't expect to turn away too many users.

The Drift download area should provide clear links that not only properly link to the program files but display estimated download times (minutes and seconds) for users of 28.8, 56K, Cable, and T-1 connections. The actual file size for the client should also appear next to these links.

NOTE: We anticipate that the Drift game client will be in the neighborhood of a 3 megabyte download (subject to change). In order to maximize the user's download experience and to meet the expected demand for the game file itself, the download area should provide links to several, geographically distributed servers.

Creating a Drift Game Account

The download page will contain a prominent link to the Account Creation area so that the user can create a game account while the Drift Client downloads.

NOTE: We estimate that the Account Creation process will take anywhere between 2-5 minutes to complete. Therefore, it is crucial that we minimize the impact and intrusiveness of this procedure by encouraging users to do it while the client application downloads. We plan to accomplish this by whetting the user's appetite by peppering the download area with numerous, enticing screen shots from the Drift game. Once users see how interesting the game looks it will be a "no-brainer" for them to go to the trouble of downloading it and creating an account so that they can participate in the fun.

The game account (registration) will be used to collect detailed demographic information on each user and is a mandatory requirement in order to play Drift. Please refer to the table listed below for a tentative list of possible game account related questions:

Example Drift Game Account/Registration HTML Form Fields

Field Name	Type	HTML Form Attribute(s)	Possible Values	Notes
First Name	Required	text box (40)		
Last Name	Required	text box (40)		
Desired Playname	Required	text box (20)		This is the name the player will be referred by within the game
Address 1	Optional	text box (65)		
Address 2	Optional	text box (65)		
E-mail Address	Required	text box (60)		See following paragraph
Gender	Required	radio button	Male or Female	
Age	Required	text box (2)		
Employment Status	Required	pull down	Professional, Student, etc. (exact categories TBD)	
How Many Times Have You Gone Snowboarding?	Required	radio button	0, 1-3, 4-9, 10+, etc.	
Favorite Sports	Required	checkbox	TBD	
Favorite Hobbies	Optional	checkbox	TBD	
Favorite Music Genres	Optional	checkbox	TBD	
Where did you hear about us?	Required	pull down	TBD	Useful for media/promotional tracking

NOTE: The above questions should be considered as a baseline. They are by no means final and are subject to change as required.

NOTE: Because of the high value of targeted e-mail addresses for future permission based marketing opportunities, we suggest that all e-mail addresses of users be validated. Although no e-mail validation method is completely full-proof, one of the easiest and most effective mechanisms is to have the registration program randomly generate login information for *every* new user creating an account. This information will then be sent to the e-mail address the user registered with, thereby also functioning as a receipt. Copy displayed throughout the registration area will serve to remind users that they must supply this information correctly if they want to play the game.

NOTE: Going to the trouble of ensuring the e-mail addresses we collect are valid will allow us to more effectively target future e-mail promotions to the game's userbase. It also opens up the possibility of renting the e-mails collected to third parties.

Upon successfully creating a game account, the user will receive a verification e-mail similar to the one shown below:

Dear Colm Meaney:

Thank you for taking the time create a Drift Game Account. Now you're all set to play our ass kickin' Drift Snowboarding game!

The Drift Playname you've selected (the name that you will be known by within the Drift game environment) is Ranking Roger.

Here's the info you'll need to login and compete against other folks:

Username: dogcapx (computer generated and unique)

Password: thx1138 (computer generated and unique)

NOTE: don't worry about that upper/lowercase junk for these. We'll recognize them no matter how you type it in. How do you like them apples?

NOTE: By asking users for a playname, we can avoid the age old problem of forcing users to pick an alternate to call themselves should they discover that another player is already using a name. So while there can theoretically be hundreds of players using the playname of "Bill Gates" within the Drift system, the system can tell the difference between them.

NOTE: The e-mail verification will also contain a link back to the Drift web site that will allow users to change the information they provided in their account at any time.

NOTE: Eventually, we'll incorporate the necessary functionality for users to change their usernames, playnames, and passwords.

All user registrations will be then written to a special *Drift Game Account* table (most likely for some SQL compatible RDBMS system as this would be more than enough to handle a large data set) for future use by the Drift client. An example of this table *might* look something like the example in Table I:

TABLE 1: Example Drift Registration Database Table Layout

Column Name	Column Type	Notes
user_number	long integer	Serial number that serves as a registration counter
user_first_name	char(65)	
user_last_name	char(65)	
user_email	char(65)	
user_age	integer	
user_gender	char(1)	M/F
user_address	char(85)	
user_city	char(60)	
user_state	char(2)	State abbreviations (NY)
user_zip	integer	
user_country	char(40)	Full country names for major European and Asian lands. Let's ignore the poorer countries – i.e. No China, No Albania, etc.
user_fav_sports	char(255)	
user_fav_hobbies	char(255)	
user_fav_music	char(255)	
user_employment_status	char(255)	
user_registration_date	date	(must be Y2K friendly)
user_playname	char(16)	Custom player name player selects during account creation. May not be unique as the player db grows but random usernames will allow players to select whatever name suits them without fear of having to compromise
user_rand_username	char(8)	8 character randomly generated could include symbols as well as numbers – this is sent via email in order to encourage valid e-mail addresses
user_rand_password	char(8)	8 character randomly generated could include symbols as well as numbers – this is sent via email in order to encourage valid e-mail addresses
user_uniq_id	char(24)	User's unique IP + UNIX <i>seconds from the epoch</i> format could serve as a pseudo-checksum (or similar function) that the registration program checks to ensure user registration uniqueness so that user's don't register twice under the same name, etc.
user_promo_referral	char(255)	Data for Where did you hear about us?
user_gameplay	integer	A counter to tell us how often a player has played Drift
user_lastplay	date	Date that user last played (must be Y2K friendly)
user_score_last	integer	Player's per score for the most recent or current game
user_score_historical	integer	Player's historical or permanent score
user_race_won	integer	Number of races won
user_fashion_selection	integer	Number that is associated with the player's current fashion selection – ie. 0123443 might map to camouflage pants, red hat, down jacket, etc. This would be read by the game upon making a network connection.
user_os	char(65)	Windows 95, Windows 98, etc.(culled from browser HTTP_USER_AGENT environment variable)
user_browser	char(65)	Netscape 4.05, MS IE 4.01, etc. .(culled from browser HTTP_USER_AGENT environment variable)
user_isp_string	char(40)	Some ISPs like MSN, AOL, and AT&T append unique service identifiers to user agent variables. This data is good for demographics.
user_purchases	integer	Dollar amount spent by this person via direct sales on the web site via buying through the game or even using the web site's shopping cart

NOTE: This table is only provided for demonstration purposes and should not be considered final. Its structure and content will ultimately be determined by the appropriate marketing and technical parties involved in this project.

The Outfitting Room

The Outfitting Room is where players can “gear up”, or equip before a game of Drift. The gear in question includes everything from snowboard selection to the actual color and style of the clothing that their on-screen persona will wear while playing.

NOTE: We decided to change the naming convention used here to “The Outfitting Room” from “The Dressing Room” due to the negative feminine connotation associated with “dressing” for what will undoubtedly be a largely male demographic. Also, by defining this area as a place to equip their character rather than “play Barbie and dress”, we can subtly do a complete sell-thru on clothing and other items without banging the user over the head.

The Outfitting Room will exist in two flavors: An enhanced Shockwave version for those users who possess the plug-in and who want the full multimedia experience and an HTML form-based version for users who do not.

Users will be given the option of choosing between the two versions of the Outfitting Room via the appropriate HTML link. For example, copy on the site might say something like this:

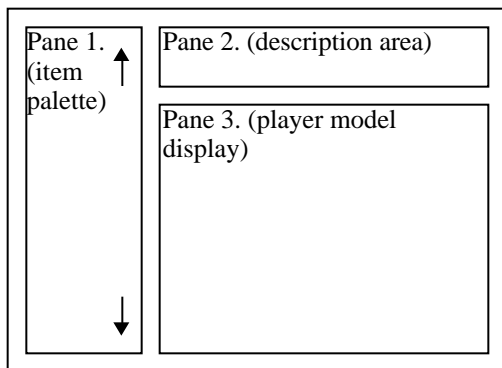
“Hey Colm Meaney, before you can play Drift, you’ll need to select the appropriate clothing and equipment from our Outfitting Room.

If you want to do it in style and have the Macromedia Shockwave plug-in, try using our [Enhanced Outfitting Room](#).

Or, if you don’t have Shockwave and are in a hurry to play, go to our [Quick Outfitting Room](#).”

NOTE: Users who opt for the Shockwave experience and *who do not* have the appropriate plug-in installed will be given the option to download and install it before proceeding as well as the option to access the faster, Quick Outfitting Room.

Diagram I: Enhanced Outfitting Room Walk-thru (Shockwave)



The Enhanced Outfitting room is divided into three different functional windowpanes.

Pane 1 (item palette) - this is a vertically scrolling palette of Silver Zipper products (clothing and otherwise). These items would be grouped according to their type and/or function. All included products will be displayed as small graphical representations. Each item's actual product name will also appear under each graphic.

NOTE: We intend to use photographic representations of all items but may have to revert to simple symbolic icons if the quality of the product photographs are not satisfactory.

To equip the user's on-screen player with a particular item, the user will select the graphic of the item that represents what they want. The user will then drag it with their mouse anywhere into Pane 3, causing it to automatically "appear" on the model's body.

In addition, whenever an item is selected in Pane 1, a detailed, catalog style description for that item will simultaneously appear in Pane 2. Along with the usual marketing copy, this section will contain an item's most recent price information (which will be pulled from silverzipper.com's catalog) and display a "Tell Me Button." When this button is clicked by the user, it will open a new browser window to the Silver Zipper web site and bring up the web page for that particular product.

NOTE: In order to track purchases of Silver Zipper items by users who were referred to the site in this manner, we will need to devise some sort of token system that will be appended to each product page url launched from the Drift Client. Silverzipper.com will then have to know how to handle this special URL whenever it is encountered.

NOTE: We need to determine exactly which of Silver Zipper's products will be featured in the Outfitting Room. The dilemma is this: If we show too many items, using the Outfitting Room risks becoming confusing and unwieldy whereas showing too few items will not provide the user with enough incentive or variation to "look around" and try things out, etc. Also, we will need to make sure that the Outfitting Room has access to the latest marketing copy and pricing information for each product that is to be featured.

Pane 2 (description area) - as mentioned previously, this pane will display marketing copy, pricing information, and a web link so that the user can find out more on each item while inside the Outfitting Room.

Here is an example of the copy that might appear in Pane 2 whenever a user selects an item:

You selected Hugh Heffner's Smoking Jacket. This paisley velvet smoking jacket comes in red, teal, and royal blue. Monogramed initials are optional. Available in S, M, and XL. Our Price: \$59.95

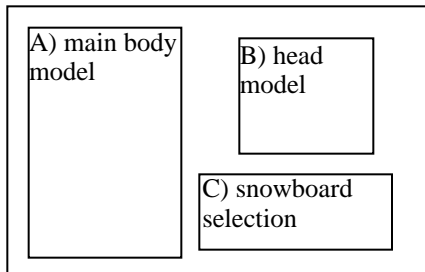
You'll look great in it and you'll drive the women wild!

To put it on your on-screen player, simply drag its icon into the center of the screen. To see photos and find out additional information, click [here](#).

NOTE: The exact number of lines of copy will vary but for sake of argument, let's assume there will be room for 6-8 lines of copy at about 60 characters per line *per* product item at a 9 or 10pt system font.

Pane 3 (player model display) - this is where all user equipment selections are visually applied to the user's on-screen character. It contains three sub-areas:

Diagram II: Player Model Display Area (Shockwave)



Area A (main body model) - this area contains a full, generic graphical representation of a male or female body (model sex is determined by data pulled from the user's Drift game account database). Initially, this figure you be rendered in ordinary street clothes. As the user makes new clothing selections from the item palette, this figure will slowly become fully clothed in Silver Zipper fashions with the addition of pants, shirt, and/or jacket/sweater, etc.

When a user drags the item of their choice into Pane 2, anything that is *body* related (jacket, sweater, shirt, T-shirt, boots, socks, and pants), that item will graphically appear on the body model.

Area B (head model) - this area will contain a generic graphical representation of a male or female head (again, model sex is determined by data pulled from the user's Drift game account database).

When a user drags an item into Pane 2 that is *head* related (hat, sunglasses, cap, etc.), that item will graphically appear on the head model.

NOTE: If it is determined that there the user should not be allowed to select head gear, this area will be removed.

NOTE: At this point, we have no determined if we will use a photographic representation of a human figure or an illustration.

Area C (snowboard selection) - this area contains an empty slot where the user will have the opportunity to select the snowboard of their choice from the item palette in Pane 1. This area will also contain radio buttons that will allow them to determine whether their player rides their board "goofy" or "normal." By default, players will ride their board "normal."

NOTE: Initially, there will be only a few board variations provided in the item selection palette. Boards will primarily differ in color and only slightly in style and shape. The user's on-screen player will only reflect color change but the Drift game physics will take into account any performance characteristics offered by different pattern boards.

NOTE: The user's on-screen character will be rendered according to their snowboard riding style.

Users can change colors for any item in the Outfitting Room by double clicking on it within its respective area.

For example: If I wanted to change the color of my pants, I would double-click on the pants in Area A (the item selection palette). Double clicking will display a pop-up window with the color choices available for a particular item.

In addition to the three panes described above, the Outfitting Room also contains two “action” buttons. These are *Ok* and *Strip*, respectively. The functionality of each button is defined below:

Button	Action
Ok	Will accept the user’s current equipment selection, save this information to their game account database entry and allow the user to play the actual Drift game
Strip	Reverts the main body model to its default state by removing all clothing and equipment selected up to this point.

NOTE: The program should not allow any players who haven’t properly equipped their players out of the Outfitting Room.

If a user tries to do this, the Outfitting Room will simply display an alert dialog with the message “Hey! You’re not properly equipped! You need to select some clothing and your board before you can go on.”

Quick Outfitting Room Walk-thru (HTML Form version)

The Quick Outfitting Room will essentially duplicate the relative functionality of the Shockwave Enhanced Outfitting Room by using a combination of HTML forms and graphic images. The display and interactivity will be much more spartan but the results will be the same.

NOTE: The exact layout and organization of this area is to be determined.

Drift Client Architecture

Program Distribution Format

The Drift game client will be made available as a Windows 95/98 compatible executable distributed as a WinZIP Self-extracting .EXE archive. It will utilize a InstallShield or similar professional-level installation program in order to minimize installation related problems and enable us to customize and brand the program distribution. This will allow us to flash logos and/or flash promotional copy during the installation process.

For example, our customized installer might display the following messaging:

- Play against friends or strangers around the block or around the world!
- Experience awesome 3D action!
- Go to <http://www.silverzipper.com> for the best in sports fashions
- Etc.

NOTE: If we indeed choose to use the installation process to show promotional content, we will need determine this messaging and create or acquire the necessary assets:

- A custom background screen (branded)
- One or more custom bitmaps that contain branding or informational/promotional messaging
- Specific copy for messaging
- A decision on the number and type of messages and when they appear during the installation process.

The installation process will create a Drift entry in the Windows 95/98 Start Menu as well as create a desktop icon alias to the game so no user will ever wonder where the application is located on a heavily loaded system.

Another advantage to using a custom installation routine is that it will support the ability to be easily uninstalled at any time, something that many Windows applications fail to do.

Drift Client System Requirements

The following are basic assumptions regarding the *minimum* and *recommended* target requirements need to run the Drift client software:

Minimum - users who meet this requirement will be able to play the game but not able to experience the game to its maximum potential.

- Microsoft Windows 95/98
- A Pentium 133 or equivalent CPU
- 32 megs of RAM
- Direct X 6.0
- A Direct X compatible video card with 4megs of RAM
- A Soundblaster or other Windows compatible Sound device
- A 28.8kbps Modem
- A mouse

Recommended - users who meet this requirement will be able to play and experience the game in all of its glory.

- Microsoft Windows 95/98
- A Pentium II (233 Mhz or above) or equivalent CPU
- 64 megs of RAM
- Direct X 6.0
- A Direct X compatible video card with 8 megs of RAM and 3D hardware acceleration
- A Soundblaster AWE (hardware wavetable) or compatible sound device
- A 56kbps Modem or faster internet connection
- A Game pad or joystick

Drift Client Features Summary

Any game worth its weight in salt will offer more than just rudimentary game play. Drift should be no different in this regard. As such, Drift will offer the following feature set that will keep it at the vanguard of the interactive gaming experience:

- **Multi-Player Capability** – at the heart of Drift is advanced networking support code that will take advantage of the multi-player capabilities of Microsoft's Direct X 6.0 API. This code will handle everything from tracking players within a game to retrieving and writing data to and from the game account database, etc. The Drift networking architecture will also be flexible enough to support dozens or even hundreds of simultaneous players. It will also include intelligent error-handling code that will allow it to deal with *and* recover from events like server failures or network interruptions with minimal disruption to game play.
- **Unlimited Terrain/Playfields** – Drift will incorporate a fractal-based terrain generation module that will allow it to create virtually unlimited, realistic terrain data so that no two Drift race courses will *ever* be the same. This technology will guarantee that each Drift game is a totally unique experience.
- **Advanced 3D Support** – like any contemporary commercial game, Drift utilizes the latest and greatest 3D technologies for fast and realistic graphic display.
- **Built-In Community Support** – Drift will provide support for two-way, text based chat sessions during game play. This capability will provide an extra dimension of interactivity in addition to fostering the competitive spirit among different players.
- **Built-In Ad Serving** – Drift will support the ability to serve up interstitials at pre-determined points throughout the game. Ad data will be pulled from the server as needed and served at the appropriate time within a game session. Furthermore, the nature of Drift's ad delivery will provide extremely high response rates due to how closely the ads will be integrated into the game.

<p>NOTE: The exact functionality of the above elements are subject to change based on time, resources, and deadlines.</p>
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Drift Client Configuration

Users will have the opportunity to tweak the performance and behavior of the Drift client to suit their particular tastes and preferences. Table II contains a list of configurable game elements:

TABLE II: Drift Client Configuration Options

Option	Purpose
Controller Configuration	<p>Selects the user's preferred game control input device – Drift will provide support for:</p> <ul style="list-style-type: none">• the keyboard• mouse• gamepad/joystick <p>This item also will allow the player to reconfigure certain modifier keys or buttons and/or adjust controller sensitivity</p> <p>By default, Drift will work with the keyboard and mouse.</p>
Display Configuration	<p>Enables the user to adjust various video and screen related parameters. These options include:</p> <ul style="list-style-type: none">▪ Allow user to adjust game window size to enhance screen performance on slower machines▪ Allow user to adjust 3D detail levels to enhance screen performance on slower machines▪ Allow user to adjust their chat window dimensions▪ Allow user to adjust chat window text colors▪ Allow user to adjust chat message scroll speed
Sound Configuration	<p>Enables the user to adjust various audio and sound related parameters. These options include:</p> <ul style="list-style-type: none">▪ Allow user to adjust sound effects and music volume▪ Select background game music▪ Toggle background music and/or sound effects on/off▪ Adjust number of playback channels to enhance performance on slower machines▪ Adjust 3D positional audio (for those with machines that can support it)

NOTE: The above options are not set in stone and are subject to change during the course of Drift's development. However, it is likely that most of the above options will be incorporated in some form.

NOTE: The configuration screen will be accessible off Drift's menu bar at all times.

NOTE: Options will also be provided to allow users to save and recall different configurations at any time.

Drift Client Modularity & Expansion

In order to keep Drift entertaining and extend its virtual “shelf-life” almost indefinitely, Drift’s architecture will support the ability to update itself (i.e. add new sounds, textures, new terrain objects, or other game related data) via the web. These updates would take the form of downloads which might occur for short periods over the course of several game sessions or all at once much like AOL’s own service updates.

NOTE: If this functionality is implemented, we will implement a system that will not bog down the user with lengthy downloads. In addition, the user will be notified *every* time this happens (as AOL does) and not be given the opportunity to cancel the process.

Incidentally, this would be a good opportunity to stream interstitial ads to the user using Drift’s built-in ad server technology.

Drift Game Play Experience

Game Objects

Drift includes a variety of interesting game objects. The following is a final list:

- 5) **The Snowboarder** - this is the player's on-screen persona. This object is the most agile of all of the items in the game due to the need for the player to control it with some degree of precision.

Appearance: It will occupy no more than 1/2 of the visible game window. Due to anticipated resolution constraints, the Snowboarder will be rendered with only a vague likeness of the clothing and equipment selected in the Outfitting Room. Therefore, certain equipment details might be missing but the overall likeness of the products selected in the Outfitting Room should be preserved.

All player action will occur using a behind the scene, third person perspective. This will allow the player maximum visibility over their on-screen character as opposed to a first person perspective.



Example of "behind" 3D view perspective:

Movement & Control: The Snowboarder will have to respond to movements in at least 8 directions (as dictated by the average joystick). In addition, moving in certain directions when pressing certain joystick button, mouse button, or key combinations will produce various "stunt" and "trick" movements.

See the table below for a tentative summary of controls:

TABLE III: Tentative Drift Player Control

Joystick	Mouse	Keyboard	Resulting Movement
Up	Forward	Up Arrow (8)	Accelerate
Down	Back	Down Arrow (2)	Slow down
Left	Left	Left Arrow (4)	Tilt left full
Right	Right	Right Arrow (6)	Tilt right full
Up-Left	Forward-Left	7	Lean left
Up-Right	Forward-Right	9	Lean right
Down-Left	Back-Left	1	Crouch
Down-Right	Back-Right	3	???
Button 1	Left Button	Left Shift	Jump
Button 2	Right Button	Right Shift	???

NOTE: This table is incomplete, as we are not yet familiar with all of the possible Snowboarding moves and/or stunts. However, by using two mouse or joystick buttons or keyboard modifier keys, there is room for as many as 10 stunts in the game's movement table.

Behavior: The Snowboarder will move and respond normally in its default, uninjured condition. Certain events such as collisions with other players or game obstacles like rocks can cause injury to the Snowboarder, which in turn will diminish its response to player control as well as its overall performance within the context of the race.

Players cannot die during a race but can be hurt seriously enough to end the race for them. In such an event, injured players will remain where they have fallen until extracted by Medivac helicopter from their current location on the racecourse.

Other Game Obstacles

- 6) **Trees** - these are the most common obstacles that the snowboarder will encounter during a race. Trees will appear as standard winter pine trees but the game will randomly display them in different sizes and textures in order to create a sense of variety in the trees that appear. Trees are the most dangerous of all of the obstacles that appear in Drift. They can injury a Snowboarder enough to end the race for them if the player collides with one head-on. Other Snowboarder injuries can occur if a player "clips", or "wings" a tree at high enough speed.
- 7) **Boulders** - these large rocks seemingly appear out of nowhere! Drift will display boulders of two sizes: large and small. A collision with a large boulder can potentially cause serious injury to a Snowboarder. Collisions with smaller boulders can cause minor injuries or loss of player control.
- 8) **Snowbanks** - these are mounds of snow of various sizes that appear from time to time during the course of a race. Collisions with snow banks do not cause injuries to the Snowboarder directly but they can cause a loss in player speed or a loss of player control.
- 9) **Flags** - these standard slalom-type flags typically appear on ski slopes. They are used to mark various areas of a racecourse. Flags can appear randomly or in a pre-determined pattern depending on the race course in question being played. Unlike most other objects and obstacles within the Drift environment, collisions with flags *do not* cause player injury or control difficulties.
- 10) **Snowmen** - these are your standard Frosty-the-Snowmanesque creations that appear every once-in-a-while. They appear in one size only and unlike snowbanks, colliding with them can cause a player to lose control and/or become seriously injured if hit at high speed.
- 11) **Fallen Trees** - these are simply trees that have collapsed for one reason or another. They are encountered only rarely and unlike upright trees, hitting a fallen tree does not directly cause serious injury. Rather, such collisions will cause less extensive injuries and a potential loss of player control.
- 12) **Jump Ramps** - these are wooden boards of various sizes that are encountered at pre-determined intervals (placement determined by course being played). Snowboarders who hit a jump ramp will be propelled into the air for some distance. Factors such as how snowboarders hit a jump ramp and speed will affect the height of their jump, its distance, and the smoothness of their landing.

Jump Ramps and colliding with other objects at speed will cause the player to go aloft for a certain distance. Please refer to the following table for some idea on how Drift will handle these events:

TABLE IV: Drift Jump Table

Object Type	Player Velocity (speed) Kilometers Per Hour	Distance Traveled (meters)
Jump Ramp	<ul style="list-style-type: none">• 0 - 5 KPH• 5 - 10 KPH• 10 - 20 KPH• 20 - 30 KPH• 30 - 40 KPH• > 40 KPH	<ul style="list-style-type: none">• 0 - 10 m• 10 - 20 m• 20 - 35 m• 35 - 50 m• 50 - 65 m• 65 - 90 m
Fallen Tree	<ul style="list-style-type: none">• 0 - 5 KPH• 5 - 10 KPH• 10 - 20 KPH• 20 - 30 KPH• 30 - 40 KPH• > 40 KPH	<ul style="list-style-type: none">• 0 - 2 m• 2 - 4 m• 4 - 8 m• 8 - 12 m• 12 - 15 m• 20 m
Small Boulder	<ul style="list-style-type: none">• 0 - 5 KPH• 5 - 10 KPH• 10 - 20 KPH• 20 - 30 KPH• 30 - 40 KPH• > 40 KPH	<ul style="list-style-type: none">• 0 - 2 m• 2 - 3 m• 4 - 7 m• 7 - 10 m• 10 - 15 m• 18 m

Non-Race Related Game Objects

Medivac Helicopter - this is used as a device to remove seriously injured players from the playfield. The helicopter descends on the screen and hoists away the player's limp body. It is intended for this object to be a rendering of a Bell Jet Ranger, which is commonly used for civilian aviation purposes.

The following is a table, which summarizes the different game objects and their role in the game:

TABLE V: Drift Game Object Summary Table

Object	Attribute(s)	Notes
Trees	Large and small	Primary game obstacle encountered in game. Collision can cause injury and/or limit player control over their snowboarder
Fallen Trees	One size	Collision can cause injury and/or limit player control over their snowboarder
Snow Bank	Large and small	Collision can cause player to lose control of their snowboarder
Jump Ramp	Large and small	Collision will cause snowboarder to jump. Injury can occur if player lands badly, etc.
Boulders	Large and small	Collision can cause injury and/or limit player control over their snowboarder
Flags	One size	Cause no injury or loss of snowboarder control if hit.
Snowman	One size	Collision can cause injury and/or limit player control over their snowboarder
Medivac Helicopter	N/A	Only appears to remove seriously injured players from the race

NOTE: For information on how injuries affect a snowboarder, please refer to the various injury tables located later in this document.

When players experience unpleasant mishaps such as falls or collisions during the course of a race, they will make a sound. There will be a sound generated by both the impact against a game object *and* by the Snowboarder's character. Please refer to the table below for an tentative list of appropriate sound samples for different types of injuries:

TABLE VI: Tentative Injury Sound Effect Use

Event	Impact Sound Effect	Player Sound Effect (Phrase)
Collision with Tree	Thud (sound of dead weight dropping)	Randomly selected scream "Ayeee!" or pained groan
Collision with other Snowboarder or Skier	Heavy impact type sound	Muffled groan or grunt
Collision with Boulder	Alternate heavy impact type sound	Deep groan or grunt or randomly selected yell "Yaah!"
Clipping Tree	Light muffle type sound	"Ouch!" or "Ooops!" sound
Clipping Boulder	Light muffle type sound	"Damn!" or "Ugh!"
Clipping other Snowboarder or Skier	Light muffle type sound	Randomly selected "Watch it!", "Outta my way!" or "Oooff!"
Wipe out	Muffled impact sound	Randomly selected "Uh oh!", "Damn!", or "Ooops!"

NOTE: In order to provide the most realistic experience, each sample described above will need to be created in both male and female voices!

NOTE: The length and quality of these sounds will depend on how much room other aspect of the game occupy so that we do not exceed our target client distribution size of 3 megabytes.

The following is a table of other sound effects used in the game as different events occur during play:

TABLE VII: General Drift Sound Effect Use Table

Game Event	Resulting Sound Effect
Movement	Light brushing sound (similar to some white noise effects)
Stunts	Randomly selected "Yippie!", "Wahoo!", "Hot Dog!", or "Alright!"
Hitting a Flag	Simple ding or 3 note chime
Completing a Race	Brief Cheer
Winning a Race	Loud Cheer
Count Down to Race Start	Simple beep with every second of count down
Knocked out of Race	Death Knell
Medivac Helicopter	Helicopter rotor sound

Game Related Objects/Special Effects

In addition to game objects such as obstacles, Drift will contain several non-interactive objects and special effects. The will produce visual and non-visual effects that will enhance overall game play.

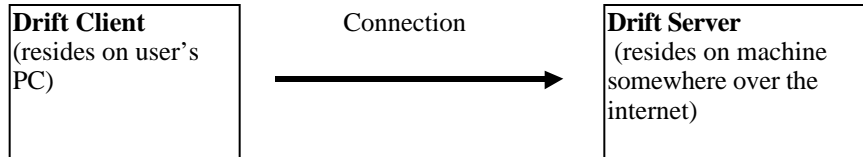
- **Snow Particle Effect** - this will be a simulated trail of snow that is kicked up as a snowboarder moves.
- **Fog** - fog will affect a snowboarder's visibility throughout a specific racecourse, causing obstacles as well as other snowboarders to be obscured from view or even invisible altogether.

NOTE: Snow particles are racecourse independent whereas Fog is course dependent.

Game Flow Sequence

The Drift game actually consists of two components: the Drift Client (described herein) and the Drift Server, an application that resides on one or more dedicated machines located over the internet that manages multiple players and Drift game sessions, etc. In order to play a game, the user must connect their Drift Client to the Drift Server.

Diagram III: Drift Connection



In order to make this connection, players must first login and be authenticated. This done via the Drift Login Dialog.

Login Dialog

This is a standard Windows dialog box with two required fields, *username* and *password*. The dialog will have the following prompting copy (or something similar):

"Welcome to Drift, a state-of-the-art multi-player 3D Snowboarding game. To play, please simply enter the username and password you were assigned when you registered at <http://www.silverzipper.com>.

If you do not have this information, please visit the Drift web site and create a Drift Game Account by [registering](#) with us.

Or, if you already have an account but lost your username and password, go [here](#)."

Submit Login

The Login Dialog will have one action button: *Submit Login*. This button will connect the Drift Client to the Drift Server and probe the Drift Game Account database for a match. If a match is found, the player will be authenticated and the following *verification* dialog box will appear:

"Welcome to Drift, **Colm Meaney (Ranking Roger)**. Get ready for some serious fun!

PLAYER HISTORY:
You've played Drift **5 times** and won **4 races** while racking up the impressive overall score of **25500** points!

NEWS:
Did you know that Silverzipper just came out with a new down winter parka? Check it out [here](#).

DRIFT TIPS:
Did you know that you can do rad stunts by moving in different directions while pressing the fire button?"

OK

NOTE: The user does not have to enter their playname during the login process! It is pulled directly from their entry in the Drift Game Account database. In the previous example, the player's playname appears in parenthesis.

NOTE: The login dialog will accept usernames and passwords entered in upper, lower, or mixed case. And, as usual practice, the password will be echoed out while its being entered in characters for security purposes.

The last two sentences are examples of tips and promotional copy that could appear in this area upon successfully logging in. Eventually, it can be tailored for each individual user. As the authentication dialog also shows player status information such as total visits and total score, its also the perfect device for doing some light promotion, etc.

Once the user clicks on the verification dialog's "OK" button, the player will be taken to the game's main menu/title screen.

NOTE: Any user who enters incorrect login information will be given the appropriate error message and the opportunity to try log-in again up to 3 additional times before the connection between the Drift Client and Server will be terminated.

Drift Splash Screen

As its headline might indicate, this is Drift's main screen. It will feature an attractive 256 color or better quality, photographic image of a snowboarder in an exciting pose. This image will serve as a background. A large, custom, 2D bitmap with the text "Drift" will overlay this image occupy the first 1/4 of this screen as well.

As a Windows application, the Drift Client will include a menu bar with the following menu items:

File	Options	Help
Abort Race	Configure Controls	Drift Help
Login	Configure Display	About Silver Zipper
Toggle Chat	Configure Sound	About Drift
Exit Drift	Load Configuration	
	Save Configuration	
	Visit Outfitting Room	

TABLE VIII: Drift Menu Descriptions

Menu Item	Function
Abort Race	Allows the user to immediately leave any race they are current in
Login	Allows the user to connect to the Drift Server and login. This option is useful for cases when player loses their connection or has other connection related difficulties
Toggle Chat	Allows the user to toggle on/off Drift's text chat window
Exit Drift	Terminates any race the player is current in, disconnects the

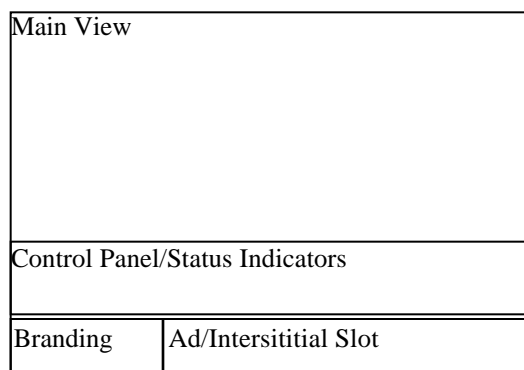
Menu Item	Function
	Drift Client from the Drift Server and exits out of Drift Client, returning the user back to the Windows desktop
Configure Controls	Allows user to select their controller device
Configure Display	Allows user to tweak various display parameters
Configure Sound	Allows user to tweak various audio parameters
Load Configuration	Allows user to recall an older or different set of configuration parameters
Save Configuration	Allows user to save their currently selected configuration parameters so that they may be recalled at a later time
Visit Outfitting Room	Allows the player to change their current clothing and/or equipment selection by taking them back into the Outfitting Room on the Drift web site. NOTE: Doing this during a race will effectively abort the current race
Drift Help	Provides access to a small Windows Help file that offers information on how to play Drift as well as basic trouble shooting tips, etc.
About Silver Zipper	Brings up an informational dialog on Silver Zipper and explains the site's features. It will also provide a link to silverzipper.com
About Drift	Brings up a Credits dialog which will list the names of all those people who worked on the Drift game as well as provide version information, etc.

NOTE: We will eventually assign common and easy-to-use keyboard shortcuts for many of these options.

The Drift Race Screen

This is where all of the action happens. The Race Screen has the following general layout:

Diagram IV: Drift Main Screen



The entire Drift game area will have to fit within a 640x480 screen (14" computer monitor)

User sizable - can occupy as much as 1/3 of total game screen space

Main View

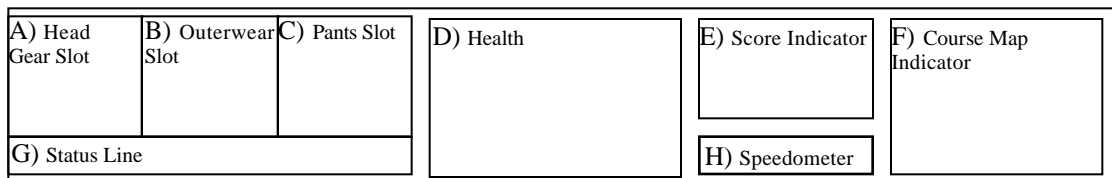
As previously mentioned elsewhere, all game action will be rendered using a third person or behind point-of-view. This provide players with better control over their on-screen characters (the Snowboarder) and will make visual elements such as game objects easier to depict than other vantage points would.

Because 3D rendering speed is very processor intensive, the Main View window will be user-sizable via a Configuration option (as previously described). However, on a system that meets or exceeds Drift's recommended system requirements, this window will occupy about 2/3 of Drift's 640x480 game area.

Control Panel

This area of the screen contains all of Drift's various status indicators such as scoring and player health.

Diagram V: Control Panel Layout



A) Head Gear Slot

This space is reserved for a graphical representation of the player's current head gear – i.e. hat, cap, etc.

NOTE: Due to obvious limitations with respect to on-screen rendering and the fact that Silver Zipper's product line may change faster than the Drift team can update its object libraries, any on-screen rendering of the snowboarder's outfit will have be restricted to one of several basic outfit styles. However, color changes will definitely be reflected for all articles of clothing.

NOTE: All of the above slots will also have room for a descriptive label which will be used to identify a piece of clothing according it its official product line or catalog reference. By default, this description line will be at least 32 characters in a small system font (6pt or 8pt).

B) Outerwear Slot

This space will accommodate a graphical representation of the user's current outerwear selection. It too would have room for a descriptive label and the include the ability to be changed in real-time.

C) Pants Slot

This space will store a graphic of the player's current pants selection. Like Control Panel items A) and B), it too would include a label and the ability to invoke real-time character clothing changes.

D) Health

This area will display the player's current health and injury status. It consists of two sections:

- **Injury Indicator** – this is a generic outline of a human figure. When the player incurs an injury, the figure outline will be filled in at the point of injury relative to the figure. So, for example, if the player hurts his left arm, the Injury Indicator would be filled in red at the left arm.

NOTE: Drift does not classify injuries according to severity - i.e. broken bones, etc. Rather it only reports on the area of injury, the player's overall health rating, and how the injury will affect player performance.

- **Health Status** – this is a numeric indicator represented as a percentage (0-100%) that shows a player's relative health. A player in perfect health will have a Health Status of 100%. All injuries that are incurred will *subtract* a random number from this overall total. Different injuries will have different degrees of severity and hence, will cause a random amount of injury to be subtracted from the player's overall Health Status.

For example: if a player falls off his board, he might sustain only a minor injury (1%). Assuming he was in perfect health at the time he sustained the injury, his Health Status might be 99%.

Health Status is of crucial importance in Drift. Simply put, the lower a player's overall Health Status, the poorer they will perform in the game. So, there is a direct correlation between Health Status and how a player is controlled and performs in a given race.

The following table illustrates how different Health Status thresholds might impact a player during a race:

TABLE IX: Health Status & Impact on Player Performance/Control Table

Health Status Rating	Impact on Player Performance	Impact on Player Control
90-100%	None	None
75 – 90%	Slight – player might not be accelerate as fast or slow down as fast. Alternatively, player might move more sluggishly overall, etc.	Player will experience a slight sluggishness in overall control. He/She might have to employ more force on input in order to achieve the same level of control they were able to enjoy at 100% health.
50 – 75%	Moderate – player would have problems accelerating, slowing down, and responding to movements overall.	Player will experience marked sluggishness in overall control.
0 – 50%	Heavy – player might not be able to accelerate, slow down, or respond as expected to selected movements.	Player will have difficulty controlling their player. Certain movements might appear erratic, be unresponsive, or simply non-existent.

As a rule, any player who's Health Status falls below 25% will not be able to complete a race due to the above impacts on control and movement. Doing this adds a deep level of realism to the game and provides ample incentive for players to avoid injury at all costs (i.e. not intentionally injure themselves).

Furthermore, different events will cause different degrees of injury. Please use the following table as a very loose guide for determining possible injury levels and their impact on player health:

TABLE X: Injury Estimation Table

Object/Obstacle	Damage from Clipping	Damage from Collision
-----------------	----------------------	-----------------------

Object/Obstacle	Damage from Clipping	Damage from Collision
Other Snowboarders	0-25%	50-100%
Skiers	0-25%	50-100%
Trees	25-50%	75-100%
Fallen Tree	10-45%	45-75%
Small Boulder	15-40%	40-65%
Large Boulder	25-50%	50-100%
Snowbanks	N/A	N/A
Flags	N/A	N/A
Wipe Outs*	N/A	N/A

* See the Wipe Out Injury table below for effect on player's Health Status

NOTE: It is assumed that the actual injury level incurred will be computed by an algorithm that takes into account a player's level of acceleration, the type of object (some objects are more dense than others), the degree of impact (grazing an object is less serious than hitting it dead-on), and some random computation.

TABLE XII: Wipe Out Injury Estimation Table

Type of Wipe Out	Damage
Wipe Out from jump	15-75%
Wipe Out from loss of control	0-10%

NOTE: Wipe Out damage is computed *separately* from that of collisions or object clippings. Wipe Out related injuries occur when a player is no longer upright after completing a stunt or a jump during a race.

NOTE: Even if a player's Health Status drops to or below 0%, they *will not* die! They will, however, be immediately put out of the race but in the Drift universe, they will be considered "recovered" by the time the next race occurs.

The following is an initial attempt to relate a player's velocity with the degree of injury:

TABLE XIII: Tentative Velocity Injury Modifier Table

Player Velocity (Kilometer Per Hour)	Injury Modifier
0 - 5 KPH	None
5 -10 KPH	1.0
10 - 20 KPH	1.5
> 20 KPH	2.0

NOTE: This modifier is applied after player injury is computed. So, for example, if a player was traveling at 20 KPH and loses 20 points from their Health Status (assuming it was at 100% before the injury), you would apply this formula: $(20 * 2) = 40$. Therefore, the injury would actually cause 40 points to be subtracted from the player's Health Status.

E) Score Indicator

This standard counter keeps track of the player's current score. In Drift, every player has two scores that are tracked and eventually written to the user's Game Account database entry:

- **Total Score** – this is the player's permanent score count. It measures all points the player has accumulated during all of their Drift sessions. In a sense, this serves as a player's "badge of honor".
- **Current Score** – this is the score that the player accumulates during a given race. When each race is complete, the current score is added to the player's Total Score figure.

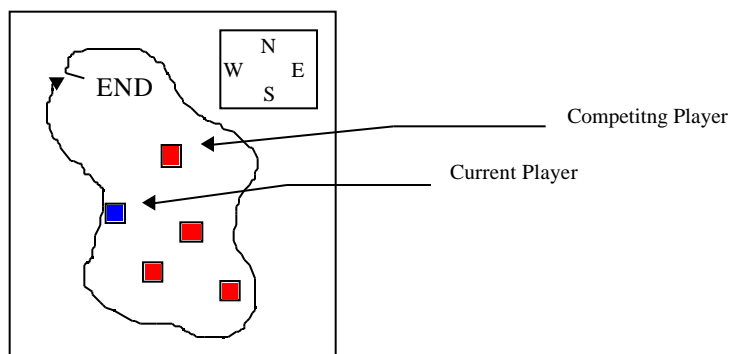
NOTE: Please refer to the Score Estimation section located later on in this document.
--

Both the Total Score and Current indicators appear as simple text. However, if so desired, they can be rendered as LED style graphic digits as used by many digital scoreboard mechanisms in sporting complexes.

F) Course Map Indicator

This is a vertically scrolling overhead map that shows the player where they are on a given course relative to other players.

Diagram VI: Course Indicator Map

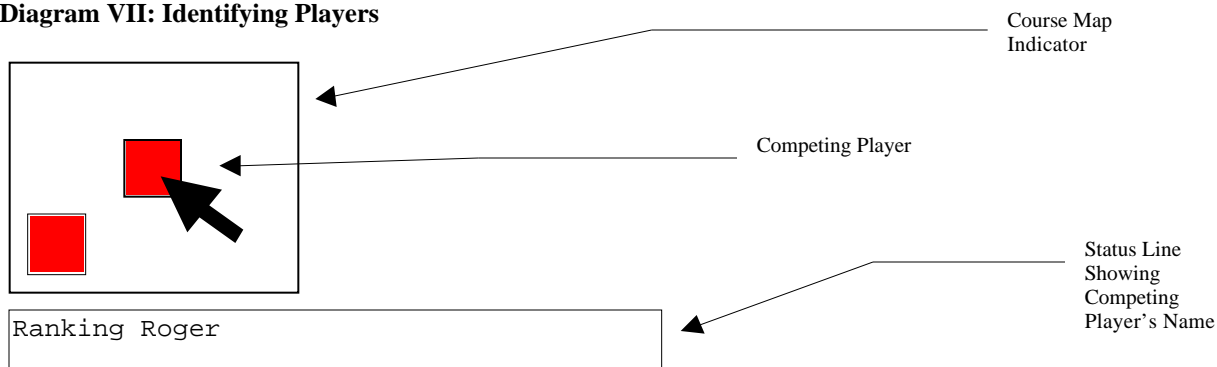


Each player is represented by a blue, 4x4 pixel square on the Course Map Indicator.

Competing players will be represented by a red, 4x4 pixel square on the Course Map Indicator.

Players can identify each other by moving their mouse over one of the colored squares. Doing so will flash the playname of the highlighted player.

Diagram VII: Identifying Players



NOTE: The Course Indicator map only reveals player position, course layout, and course end. It does not display information on the location of obstacles such as trees or boulders.

G) Status Line

This is a space where certain system messages will appear. However, its primary use is to display the name of players who are highlighted by a user in the Course Indicator Map described above.

H) Speedometer

In Drift, as in any racing type game, the faster players move, the sooner they will reach the end of a race course. The Speedometer will show the player's current velocity (speed) in LED style digits.

Velocity will be measured and displayed in KPH (Kilometers Per Hour).

Example:

15:24 KPH

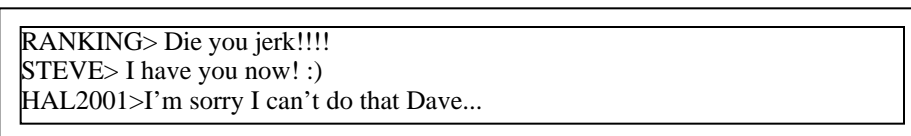
Chat Window

At anytime, players can invoke a chat window from which they can exchange taunts, threats, or other "competitive" interactive messaging. This window will appear and disappear as needed via standard window controls. It can be invoked by either keystroke or a menu selection.

As like any chat environment, the Drift chat window can be between 1 and 5 lines high and will support basic text editing abilities like backspace, delete key, and full arrow key movements. Messages are sent by hitting the Return key. In addition it will have a scroll buffer that is capable of displaying up to 25 of the most recent messages sent by all contestants.

Chat messages can appear in a user-defined color. However, by default, it will appear as white text. In order to distinguish different chat messages sent by different players, messages will be preceded by the first 8 characters of the sender's playname.

Diagram VIII: Chat Window



```
RANKING> Die you jerk!!!!  
STEVE> I have you now! :)  
HAL2001>I'm sorry I can't do that Dave...
```

Other items like the speed at which text scrolls off the window will be configurable as well.

Branding Space

This area of the game screen is reserved for appropriate Drift/Silver Zipper branding logo graphic. Since Silver Zipper is a new brand, this area will serve to impress it on the user who, after successive exposures, will remember and recall it.

Ad/Interstitial Space

Drift offers Silver Zipper incredible advertising and promotional opportunities due to the nature of the game's environment, the duration of user involvement, and the high likelihood of return use.

Therefore, it only makes sense to develop a system within the game client that will allow us to exploit these possibilities. As such, we intend to create an integrated *Ad Server* component for the Drift client to handle these promotions.

The Ad Server will use Macromedia's Flash technology to render all ads. Flash was selected because it:

- It supports a wide variety of multimedia effects from timed events, mouse input, and assorted interactivity
- Its extremely compact making it very well suited for use over slow internet connections
- It's an industry standard in Rich Media Ad content delivery, therefore, there exists a large number of clients who already possess the development resources needed to create ad content. This means we can insert ad runs quicker and clients won't need to grapple with a steep learning curve of a proprietary system

The Ad/Interstitial Space will occupy a fixed area on the Drift game screen. However, it will be located towards the bottom of the game screen in order to minimize player distraction without reducing the visibility of the ads shown. In addition, ads will be scheduled only at selected times during the course of play so that we can maximize their impact and reduce the possibilities of annoying our users.

Initial Drift Ad Specs

- All ads will be in the industry standard 468x60 banner size
- Ads can be a maximum of 15 seconds in length
- Ads can not use sound
- No single ad can exceed 75K in size

NOTE: We will devise an intelligent ad scheduling system to ensure that ads do not become intrusive to the user.

NOTE: We will create a rudimentary ad tracking system so that we may measure the performance of ads that run from within the Drift game.

The Race Sequence

In Drift, races start every 60 seconds. We will employ a special *Race Scheduling System* that will random select a race course and then announce to all players who are logged in to the Drift Server that a race is to begin.

This race announcement will appear as a dialog box on each user's screen. In addition to notifying a user as to when a new race is to begin, the announcement will provide other pertinent information such as course conditions, etc. The dialog box will look something like the one in the following example:

RACE ANNOUNCEMENT:

Hello **Ranking Roger**, a new race will be beginning in **60** seconds.

Course is **moderately icy**, **visability is low**, **slope is steep**, and **very windy** from the **SouthEast**. Therefore, the overall course rating is **DIFFICULT**.

What would you like to do?

The Drift menu bar will include a timer that will automatically countdown from 60 to 0, or until one minute passes. When the counter reaches 0, the dialog will disappear and the race will be closed.

Once a race is closed, no one may join a race until the next one is announced.

If the user clicks on the "Wait for Next" button, the dialog box will disappear and the user will have to wait for the next race announcement in order to have an opportunity to join a race.

If the user clicks on the "Join Race" button, the dialog will disappear and the user will be able to participate in the current race.

If a player clicks on the "Wait for Next" button and does nothing for at least 30 seconds, they will be served an ad and be given the opportunity to play the Drift game in a single player (non-competitive mode) environment.

When this happens, a dialog like the one below will appear:

Hey there Ranking Roger!

Do you want to hit the slopes and practice while you wait for a race that interests you?

If the player selects "Yes", they will be able to play the Drift game on a default race course by themselves.

If the player selects “No”, they will simply be taken back to Drift’s splash screen and where they will wait until they A) find a race they would like to join, B) have a desire to practice, or C) opt to quit the Drift game.

NOTE: This system will minimize idle time for players while allowing them to pick and choose the races they would like to participate in.

Starting A Race

Once players opt to join a new race, they will be transported to the Main View described earlier in this document. Upon reaching this screen, they will see their snowboarder rendered on the game screen as well as the snowboarders of other players visible on the periphery.

All races are preceded by a countdown that is set for 5 seconds. The counter will play audible beeps as it counts down and a large, decrementing counter will appear on the screens of all participating racers. When the counter hits 0, a different audible chime will play and the word “Go!” in very large type will flash on every player’s screen for exactly 2 seconds before it disappears. At anytime during or after the word “Go!” appears, players may start racing.

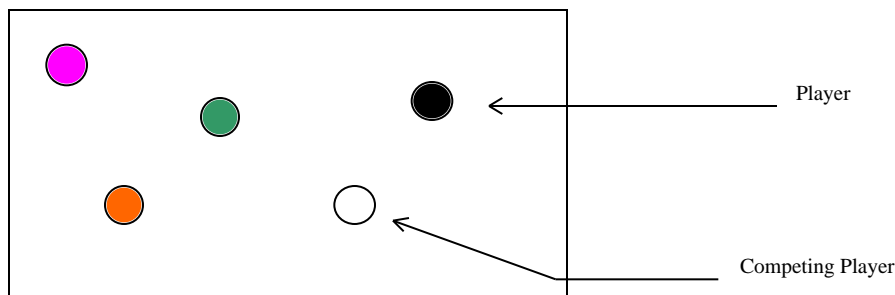
The program will lock all player controls before the word “Go!” appears so that no user can cheat.

NOTE: Players who opt to play Drift “solo” or without other players present will not have a countdown. They will be able to move immediately upon entering the race course.

Player Positioning At Race Start

In order to make things fair, no player will have a pre-determined position on playfield, rather, their positioning at the course’s starting line will be randomly determined by the game prior to the start of the race.

Below is an example of a player start positioning (assumes overhead view for illustration purposes):



Drift Race Courses

All racecourses are automatically generated by Drift's built-in terrain generation module and are randomly selected by the Race Scheduling System.

Racecourses in the Drift game can have the following environmental attributes:

TABLE XIV: Race Course Environment Attributes Table

Attribute	Notes
Visibility	<p>Visibility affects the ability for a player to see what is in front and/or around them during play. In Drift, visibility is represented by the presence of fog.</p> <p>There are three possible visibility conditions:</p> <ul style="list-style-type: none">• Low - the course is very foggy, it is very difficult to make out objects in all directions, making it potentially dangerous for players due to high possibility that they will collide into another player or game object• Moderate - the course is somewhat foggy. Some objects on the course are completely obscured by haze while others are not. Players will have to take care not to collide into other players or objects but otherwise they can navigate the course• High - the course is clear. No haze or foggy conditions exist. Players can easily see what is in front and around them. This is the easiest and most favorable variant of this course condition
Iciness	<p>Iciness affects the degree of control players will have over their snowboarders as they navigate a course.</p> <p>There are three possible ice conditions:</p> <ul style="list-style-type: none">• Low - the course is largely free from ice, which means there will be little or no impact on player control. This is the easiest and most favorable variant of this course condition• Moderate - the course is somewhat icy. This means that some parts of the course will be a little more slippery than others, thus, having some impact on player control• High - the course is very icy. This means the course is extremely slippery and very dangerous to navigate due to the unpredictability of player control
Slope	<p>Slope affects potential player velocity. Steeper slopes will allow players to achieve higher velocities than slopes with a smaller decline.</p> <p>While increased velocity will allow the player to reach the end of a course faster, it also makes the snowboarder more difficult to control.</p> <p>There are three possible slope conditions:</p> <ul style="list-style-type: none">• Very Steep - the course slope has a very steep decline. Players can achieve the highest speeds possible on such slopes but run a greater risk of injury due to the impact that high speeds may have on player control• Steep - the course slope has a steep decline. Players will not be able to travel as

Attribute	Notes
	<p>fast as they could on very steep slopes but can still go relatively fast. The risk of injury due to control issues at high speeds is still present but not as pronounced as it is when on a course with a very steep slope</p> <ul style="list-style-type: none">• Slight - the course slope has a minor decline. Players will not be able to travel very fast on such slopes (due to a lower force of gravity) but player control is not affected at all
Wind	<p>Wind affects both player speed and player control because it exerts force against a player in a particular direction.</p> <p>Wind has three possible values in Drift:</p> <ul style="list-style-type: none">• Very - wind blows hard. The player will have to exert more effort in order to move and/or maintain a specific velocity on a course• Moderate - wind blows slightly. The player will have more resistance to movement than normal but not as much as if it were very windy• Light - wind barely blows or blows infrequently. There is no discernible impact on player velocity on control in such conditions <p>In addition to force, Wind can also appear in one of 8 directions: N, NE, NW, S, SE, SW, E, and W</p>

NOTE: Because of time constraints in developing a realistic physical model for Drift, we may eliminate one or more of the above attributes for the initial release of the Drift Client.

NOTE: The above attributes are *in addition* to standard game objects such as trees and boulders, etc. Each racecourse will have random distributions of these objects.

NOTE: Drift's "solo" course will be a fixed course. That means that it will be hardcoded into the program. However, in order to properly introduce the player to all of the game's dynamics, it will contain all of the game's objects. However, course environment attributes such as fog, wind, slope, and iciness will not be present.

Course Length

In order for there to be a race winner, a player must be able to reach the end of a given course. In Drift, all courses have finite lengths but are not necessarily the same length. Course length will be determined in meters with the smallest course measuring about 3,000 meters and the longest course measuring 9,500 meters. Drift's terrain generator will randomly assign a length to a course when it is created.

To make Drift more interesting, course length will not be revealed during a race announcement.

NOTE: The "solo" course in Drift will be limited to 3,000 meters.

Ending A Race

In Drift, a race ends when any of the following conditions are met:

- All players are knocked out of the race *before* they complete the course
- All remaining players finish the course
- All players abort the race prior to someone winning

In addition, a race will end for an individual player if the following occur:

- A player is knocked out of a race due to severe injury
- A player opts to leave a race prematurely (aborts) or gets disconnected at some point (i.e. network problems, etc.)
- A player wins a race
- A player completes a race (but does not win)

When a player completes a course, the race ends. Their Snowboarder character will stop and their final current and total scores are tabulated.

When a player completes the racecourse *first*, they win. Essentially, the only difference between winning and completing a course is that a race winner will also enjoy a celebratory musical overture and crowd cheer (to be determined) and possibly a crude trophy award sequence (if time and budget allow its implementation). The race victory will also be recorded in their Drift Game Account database entry and displayed as a statistic each time they play Drift.

NOTE: to further the allure of Drift, we <i>might</i> implement some sort of online statistics center where players can browse how well other racers have done.
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When a player completes a race, they will be simply greeted by a crowd cheer while their final results are tabulated.

Players who are knocked out of a race due to injury will simply hear a death knell. However, their final score up until the point where they left the race will also be tabulated and displayed on screen.

In addition to ending a race through a win or completion, any player may abort a race by pressing the ESC key or selecting the “Abort Race” menu from the menubar. A simple alert dialog with a “Are you sure you want to leave this race?” message with “Yes| No” buttons” will be displayed as a confirmation.

Drift Score Estimation

Scoring plays an integral role in Drift. Players seek to further their scores for two primary purposes: posterity and to earn discounts at the Silver Zipper online store.

TABLE XV: Drift Scoring Table

Game Action	Points Awarded
Every second player stays in race	1 pt
Every Flag hit	50 pts
Every Successful Stunt	150 pts x stunt difficulty factor
Every Jump	10 pts per meter (50 meter jump equals 500 pts!)
Completing a race	250 pts
Winning a race	1000 pts

Because some stunts will be harder than others to perform, we have provided the table below as a means of awarding players who manage to pull off difficult stunts:

TABLE XVI: Drift Stunt Difficulty Factor Table

Stunt Difficulty	Modifier
Very Difficult	3.0
Difficult	2.0
Moderate	1.0
Easy	None

NOTE: We will provide a list that rates each stunt's difficulty once we determine which stunts to support in Drift.

In addition to the above values, a given course's difficulty will affect how points are awarded by applying a Difficulty Modifier to each of the above game actions.

TABLE XVII: Drift Course Difficulty Modifier Table

Course Rating Difficulty	Modifier
Very Difficult	2.5
Difficult	2.0
Moderate	1.5
Easy	None

To illustrate how modifiers will impact a player's score, consider the following example:

Player races on a course that is rated Moderate and performs a jump that lasts 10 meters. For that action, their score would be computed as follows: $(10 \times 10) = 100 \text{ pts} \times 1.5 = 150 \text{ pts total}$

NOTE: Drift will be a challenging game so we do not want to penalize players for incurring injuries during a game.

The following is a loose guide for awarding player scores:

TABLE XVIII: Awards for Score Table

Player Score	Award Given
> 1,000 pts or Winner (per race)	Congratulatory e-mail from Silver Zipper (along with special offers)
> 10,000 pts (total)	Coupon that entitles user to a given % off their next Silver Zipper purchase
> 25,000 pts (total)	Eligibility to a special offer and/or discount on Silver Zipper merchandise
> 50,000 pts (total)	TBD

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Author Biography



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In addition, he is an accomplished 2D game artist/designer, having written *Designing Arcade Computer Game Graphics* (ISBN: 1-55622-755-8) and has had his design work featured in books such as *Web Site Graphics: Homepage and Splashpage* (ISBN: 1-56496-723-9).

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