1. **Project Abstract**

The proposed game will be a computer game version of the popular board game Buck Rodgers. Players will be able to play the board game in the multiplayer style known as hot seat, where users take turns at the same computer. The game will allow from two to six players to play. The game will not deal with in artificial intelligence and will solely be intended for multiplayer use. Due to the nature of the game, the graphics will be in two done in 2D and offer a layout and feel similar to that of the board game.

2. **Document Revision History**

   Rev 1.0 1/30/2007 – initial version/sketch
   Rev 1.1 2/1/2007 - Competitive Landscape and Game Rules Added
   Rev 1.2 2/5/2007 - Project Abstract and Checklist Added
   Rev 1.3 2/6/2007 - Writing the System Requirements section.
   Rev 2.0 2/6/2007 - Combined Document with Activity Chart Images

3. **Customer**

3.1 **User Base**

The general customer for this software is anyone who enjoys computer games, board games, or specifically turn based strategy games.

3.2 **Informants**

The specific customer who will be testing and giving feedback to our design will be:

- Nick Neidzwski - NYU Student, Strategy Game fan

4. **Competitive Landscape**

The gaming industry is a multi billion dollar, multi-continental industry that produces thousands of products of all different sorts. Therefore there are tons of different types of game developers out there, from large companies that focus specifically on console games, to companies who only create games for cell phones. All are different, have different ethics, different methods, and different models for design.

4.1 **Small Independent Game Developers**
There are a surprising amount of freelance developers who design, or recreate turn based strategy board games for the PC. Many of these games are free to play, or cost only a few dollars to purchase directly from websites for immediate enjoyment. The developers also have the advantage of not having time constraints due to creating the games for someone else, as well as being able to develop games however they want with whatever tools they have accessible to them. Also, they have the ability to choose whichever game they really enjoy to make into a computer version. Other than copyright distribution, these developers are fortunate enough that all of the profit from the game goes directly to them. Since turn based strategy games are in general easier to develop than games like Final Fantasy VII or World of Warcraft, it makes it possible for these developers to exist.

These small freelance game designers also have the disadvantage of not having an already defined user-base for their personal games, as they usually only make one or two games ever. Also, they will never have the resources that large game designing companies have, and usually work alone. Graphics are usually very simple, as most freelance game designers are not also 3D Modelers, and don’t have libraries of already preexisting models to use.

4.2 Large Game Companies (Electronic Arts, Squaresoft, etc)

These companies are the Don Corleones of the game industry. They produce and release games and amazing speed and frequency, employ thousands of designers, developers, artists, and story writers around the world. They will design a game with amazing graphics and sound, and do so in minimal time.

These companies usually focus on much larger scale games, such as the ones mentioned above. They are companies looking simply to make money, and will not design a game based upon a board game only because one of the developers likes to play the game. They also often focus more on flashy design and graphics, and very rarely make a turn based strategy game that has solid gameplay.

4.3 Online game websites (iWin.com, Miniclip.com, etc.)

Solely based online, these companies create small games that feature simple gameplay. They develop these games quickly and in mass quantity. The games are made more for their addictive quality and variety in numbers than for gameplay or graphical quality. Commonly made games are versions of older games, game shows, and board games as well as some original creations. Most all games are playable via a web browsers and some of the sites will make a downloadable version of some of there games.

5. Game Rules

5.1 Winning the game
There are several conditions that can cause the game to end with a player as the
winner

5.1.1 - Control 15 Territorial Zones at the end of any turn (for 3 player game 20 territories, for 2 player game 25 territories)
5.1.2 - Control the last Leader Character on the board
5.1.3 - Convince all other players to surrender
5.1.4 - Control the highest amount of Territorial Zones after the earth returns to its starting point

5.2 Game Board (Pictured Below)
The game board comprises of several different areas
- Solar System Display, which is an overhead of the board, showing where the different planets are, and also used for movement between planets
- Planetary Display, which is the surface of each planet divided into Territorial Zones, Near Orbit Zones, and Far Orbit Zones

5.3 Units
There are several different unit types that you can control to try to win the game

5.3.1 - Lead Characters
Lead Characters are your most important unit. They give you +2 bonus for attacking. However, if your leader dies, you miss one entire turn, and the leader is removed from the game
5.3.2 – Troopers
Troopers are the human grunts of the army. They can move one Territorial Zone per turn, and can travel via transports.

5.3.3 - Gennies (Genetically engineered humans)
Gennies are more powerful and effective than Troopers; however they can not travel between planets.

5.3.4 – Transports
Transports are ships used to move either 5 troopers or one factory up to four units per turn.

5.3.5 - Fighters
Fighters are your basic space ship attack units. They are easy and cheap to build, and can move up to four units per turn.

5.3.6 - Battlers
These battle ships are the strongest ships in the game. They have the ability to bomb Territory Zones on planets.

5.3.7 - Killer Satellites
Killer Satellites are solely a airborne defense weapons placed in Near Orbit Zones of planets you control entirely. They have the advantage of getting a first, extra, attack in battles.

5.3.8 - Factories
Factories are the engines for the players war. Factories can produce units or more factories every turn.

5.4 Game Set Up

5.4.1 Game Set Up(4-6 player game)
5.4.1.2 - All planets start on their designated starting point, "sun side up"
5.4.1.3 - Each player selects army color and Leader
5.4.1.4 - Receive 6 Territorial Cards(each card represents a different territory on the board)
5.4.1.5 - Taking turns, each player places 3 of the initial pieces on to one of their 6 starting territories(designated by the Territorial Cards)
5.4.1.5.1 - Initial army:
• 1 Lead Character
• 8 Troopers
• 4 Fighters
• 2 Factories
• 2 Gennies
• 1 Transport
5.4.1.5.2 - Starting territories can not have more than 6 units in them

5.4.2 Game Set Up(3 player game)
5.4.2.2 - All planets start on their designated starting point, "sun side up"
5.4.2.3 - Each player selects 2 army colors and 2 Leader
5.4.2.4 - Receive 9 Territorial Cards(each card represents a different territory on the board)
5.4.2.5 - Taking turns, each player places 3 of the initial pieces on to one of their 6 starting territories(designated by the Territorial Cards)
5.4.2.5.1 - Initial army(for each army controlled):
• 1 Lead Character
• 8 Troopers
• 4 Fighters
5.4.2.5.2 - Starting territories can not have more than 6 units in them, or units of different colors

5.4.3 Game Set Up (2 player game)
5.4.3.2 - All planets start on their designated starting point, "sun side up"
5.4.3.3 - Each player selects 3 army colors and 3 Leaders
5.4.3.4 - Receive 12 Territorial Cards (each card represents a different territory on the board)
5.4.3.5 - Taking turns, each player places 3 of the initial pieces on to one of their 6 starting territories (designated by the Territorial Cards)

5.4.3.5.1 - Initial army (for each army controlled):
- 1 Lead Character
- 8 Troopers
- 4 Fighters
- 2 Factories
- 2 Gennies
- 1 Transport

5.4.3.5.2 - Starting territories can not have more than 6 units in them, or units of the same colors

5.5 Turn Phases
5.5.1 Phase 1 - Turn Set Up
Move the planets on the Solar System Display one place counterclockwise each along their orbit, and change them from day to night, or night to day

5.5.2 Phase 2 - Figure out Turn Order
Each player roles the die, the highest roller plays first, if roll is even play proceeds counter clockwise, if odd play proceeds clockwise

5.5.3 Phase 3 – Movement
Player gets to move as many pieces as he or she wishes, as many spaces (up to that units movement limit) as they would like

5.5.3.1 - Ground Units
Ground Units can move up to the next adjacent Territory

5.5.3.2 - Air Units
Air Units can move up to 4 Territories, to move into the solar system display, they must do so from the Far Orbit

5.5.3.3 - Movement Restrictions
Units can not move from one territory to one in which there are enemy units without entering combat

Air Units can move through, but not end their turn on, areas that have enemy units
ALL PLAYERS TAKE THEIR TURNS MOVING BEFORE ADVANCING ON TO THE COMBAT PHASE

5.5.4 Phase 4 – Combat
When opposing units end the Movement phase in the same Zone, combat
may result. Combat is option in space and in orbits

5.5.4.1 Combat Order
- Killer satellites get all their free attacks
- Bombers in orbit bomb the planet surface
  - Once per turn, a Battlers gets to bomb an adjacent Territory Zone, getting a chance to roll a 7 or higher on the die to instantly kill one unit in that zone
- Territorial battles are resolved
- Near and Far Orbit Zone battles are resolved
- Space battles are resolved

5.5.4.2 Attacking
Attacking happens in rounds, they are played out as the following:
1. Choose which unit you want to attack which enemy unit
2. Roll Die, and consult battle chart (seen below)
3. If the target was hit, it will be destroyed at end of round
4. Select another piece to attack another unit
5. Opposing player gets to counter attack, including using the pieces that were hit
6. When both players are done attack, remove all hit pieces from the game

5.5.4.2.1 Conditions with leaders
- Leaders can never be the target of an enemy attack
- If your leader is in the same Territory as your attacking troops, add +2 to your roll
- If all of your units are killed, leaving the leader alone on a territory, the leader is killed and the player has to miss a turn

5.5.4.3 Factory Sabotage
If the enemy takes control of a Territory that you have a factory on, the enemy also takes control of that factory, at this point, you have a chance of rolling the die, to try to get a 7 or higher to destroy that factory

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<th>Troopers</th>
<th>Gennies</th>
<th>Fighters</th>
<th>Battlers</th>
<th>Transports</th>
<th>Killer Satellites</th>
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<td>8</td>
<td>7</td>
<td>X</td>
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<td>X</td>
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<td>6</td>
<td>7</td>
<td>5</td>
</tr>
</tbody>
</table>

ALL PLAYERS TAKE THEIR TURNS ATTACKING BEFORE THE BUILDING STAGE

5.5.5 Phase 5 - Building
After Combat face, each player gets to build units using their factories. Each
factor can produce the following:

- In one Turn:
  - 2 Troopers
  - 2 Gennies
  - 1 Fighter
  - 1 Transport
- or in two turns:
  - 1 Killer Satellite
  - 1 Battler
  - 1 Factory

If a factory changes control in the middle of constructing a Killer Satellite, Battler, or Factory, the new controller can choose to complete the construction for their own army.

If no factory is owned, the player gets either 1 Trooper, 1 Fighter, or 1 Factory in 2 turns.

6. User Requirements

6.1 Profile creation

Users will have the option to create a profile with name of their choice. This account will be used to keep track of wins, losses, and other statistical information.

6.1.1 Basic Flow

1) User selects "new profile" from the main menu.
2) User will be taken to the profile information input screen to enter and submit the information.
3) The new profile will be created and the user will be taken back to the main menu.

6.2 Profile selection

Pre-Condition: must have created a profile.

6.2.1 Basic Flow:

1) User will select a profile that will create the new game.
2) User will be taken to game start screen.

6.3 Profile records

This will be a section for viewing the records of all player profiles including lifetime leaders. Rankings will be ordered by win percentage and by the number of total wins.

7. System Requirements

7.1 Start Game
Upon starting the game up the user will be taken to the main menu. The menu will provide options to create new profiles or load an existing profile.

**Pre-condition:** there must be at 2 or more player profiles to start a new game.

**Post-condition:** Game set up complete individual turns commence.

7.1.1 Player Number and Selection
A user logs in and then selects the number of players and which player profiles.

7.1.1.1 Basic Flow
1) User selects profile from profile selection screen.
2) User then selects to create a new game.
3) User sets the number of players.
4) Check for sufficient profiles for number of players.
5) If insufficient profiles ask user to reset number of players or go back to profile creation.
5) Confirm Game Settings

7.1.2 Game Setup
The users select their leaders and set up their initial positions on the board.

7.1.2.1 Basic Flow
1) Each user selects their leader
2) The game randomly selects the player order for the set up phase.
3) Players place their units on their randomly assigned starting areas in turns.

7.2 Movement Phase
Player order is randomly generated at the beginning of each movement phase. Each player takes their movement phase in order, prior to the attack phase.

**Pre-condition:**
A) Movement phase is entered from Game Setup.
B) Movement phase is entered from the end of a turn.

**Post-condition:** Users enter attack phase

7.2.1 Ground
7.2.1.1 Basic Flow
1) The current player moves their ground units, including their leader.
2) The player confirms their current move.
3) The player ends their turn.

7.2.2 Air
7.2.2.1 Basic Flow
1) The current player moves their air units.
2) The player confirms their movement.
3) The player ends their turn.
7.3 Attack Phase
In the attack phase players get a turn to attack enemy units with their various.

Pre-condition: All players have completed their movement phase.
7.3.1 Basic Flow
1) All killer satellites take free attacks.
2) Battlers in orbit bomb zones.
3) Ground combat occurs.
4) Near and Far orbit combat occurs.
5) Space combat occurs.

7.3.2 Normal
7.3.2.1 Basic Flow
1) In player order, the current player rolls an attack on another player's unit in the same territory.
2) The attacked unit then counter attacks.
3) Destroyed units are removed from the field.

7.3.3 Killer Satellite
7.3.3.1 Basic Flow
1) In player order, all killer satellites attack all ships they share orbit with.
2) All destroyed units are removed from the field.

7.3.4 Battlers
1) In player order, all Battlers in near orbit select a target on the plant and attack that unit.
2) All destroyed units are removed from the field.

7.4 Build Phase
During the building phase, each player selects what units to manufacture in the current round at any factories that are not currently in production.

7.4.1 Factories
7.4.1.1 Basic Flow
1) Check for factories in production and make them unable to produce this round.
2) In player order, all players select a unit to build at each factory.
3) All completed units are deployed, or the factory remains in production for 2 turn units.

7.4.2 No Factories
7.4.2.1 Basic Flow
1) The player selects the unit to be produced.
2) The production lasts for 2 rounds.
3) The produced unit is deployed.

7.5 End Turn (Universal)
This stage occurs after the build phase and is independent of user interaction. The natural orbit of the planets will shift all of the plants one position counterclockwise.
The new player order will then be generated.

7.5.1 Planet Movements
7.5.1.1 Basic Flow
1) Each plant is shifted counterclockwise from its current position.
2) The sun/moon status of each planet switches.

7.5.2 Reselect Order
7.5.2.1 Basic Flow
1) The player order is randomly generated.

7.6 End Game Conditions

7.7 Nonfunctional System Requirements

- The project will be completed by the end of the semester
- Platform: Unix
- User Interface: GUI Graphics using an outside library
- Scalability: The System will be able to handle at least 10 user profiles
- Memory Requirements: There will not be any memory requirements as the game will not involve very intense or detailed graphics

8. Checklist

8.1 General

- Have all the viewpoints of all the stakeholders been taken into account?
- Do the requirements completely specify what the function of the program should be?
- Are all non-functional requirements (e.g. speed, memory, capacity) specified?
- If there are requirements imposed by the environment in which the program will be used, are those requirements specified?
- Do the requirements avoid specifying a solution or a design?
- Are there any conflicts throughout the document?
- Are the rules complete enough to describe the full game?
- Are all of the necessary interfaces specified, including input and output?
Profile Selection

Number of Players Selected

Additional Profile Selection

Profile creation

New profile or fewer players

no

Insure enough profiles

yes

Player Order Determined

Leader Selection

Territory Distribution

Unit Distribution

Movement Phase
Movement Phase

Player Order Generation

Ground Movement

Ground Movement Confirmation

Air Movement

Air Movement Confirmation

Attack Phase
Attack Phase

Special Phase I (see Phase I slide)

Special Phase II (see Phase II slide)

Normal Phase (see Normal Phase slide)

Build Phase
Special Phase I

Find Killer Satellites

- found
- No satellites

Satellite Attack phase

- Destruction evaluation

Special Phase II
Special Phase II

Find Battlers

Bombing Targeting Phase

Bombing Phase

Destruction Evaluation

Normal Phase

No Battlers

found
Normal Phase

Ground or Space

- ground
- space

Mandatory Battle

Fight or Not

- fight

Select Target

Evaluate destruction

Build Phase
Build Phase

Factory or no factory

Select Factory

Select Limited Units

Done with turn?

In Production?

Create unit/end Phase

Select Unit