Game Design Document: *Tactical Turret Defense Game*

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I. Overview

Tactical Turret Defense is a simple tower defense game which could be released as a simple single player online flash game. The goal of the game is to earn as much money as possible before dying. You will do this by controlling 4 turrets and killing incoming enemies. The tactical part of the game is to buy upgrades for your turrets in different ways so all kinds of enemies can be killed.

II. Game Mechanics

The game will be played with mouse and keyboard (but the controls could eventually be modified for an iPhone application). The game area consists of a top-down view on the battle-field. Enemies will spawn north outside the screen and will make their way down attacking the four towers.

In game UI

The biggest part of the screen will be used for the battle field. The bottom side of the screen will be used more like a menu:

- The stats of the currently highlighted turret,
- The possible upgrades you can buy for the turret.
- The current money balance will be shown.
- The total score
- Pause button and other menu functions
- Specials

As this is quite a lot of data to display the menu might be devided in tabs.

Control Elements

The user controls four turrets which are located at the bottom of the screen. You can select a turret by pressing the corresponding key on the keyboard (1,2,3,4). The location of the turret can be changed when selected by pressing (q,w,e,r). After a turret is selected a target can be assigned by clicking an enemy with the left mouse button. This enemy will now be locked by the turret and the turret will start firing upon the enemy when the enemy is in range.

When a turret is selected the stats and upgrades of that turret will show in the menu bar.
Each turret has its own color. When an enemy is selected a circle will appear over the enemy. The circle will match the color of the turret which has locked the enemy. In case of figure 3, turret 1 has locked two enemies. If the turret has the ability (upgrade) to target multiple enemies the order of attack will be indicated by a small number on the top right of the target-circle.

**III. Artificial Intelligence**

**Enemy AI**

The enemies will have some basic AI. When they are spawned they will be randomly placed north outside of the screen. They will be assigned a turret and will start moving towards the turret when spawned. When they reach the turret without being shot they will detonate and do damage to the turret. The next step would be to add AI to evade the other enemies to avoid overlapping graphics.

After selecting a turret and targeting an enemy the turret will automatically follow the enemy. The angle between the turret and the enemy will be calculated real-time and will take effect when the enemy is in range.

There are four enemies which all require a different kind of AI:

- Evasive behavior
- Spawning new enemies from one enemy

**IV. Game Elements**

**Specials**

Next to the turrets there are more game elements. There are 4 “specials” which can influence the game in a big way:

- Abomb – kills all enemies on screen
- Slowmo – slows down all enemies for a short amount of time
- Repair - repairs turret which is currently selected
- Auto-pilot – computer takes control of one turret for a short amount of time

All specials take quite a while to charge (needs to be defined during user testing) and cost quite some money as they are very powerful game elements.
Upgrades

The money you earn by shooting enemies can be used to purchase upgrades. There are a number of upgrades available for your turrets. The goal is upgrade your turrets in such a way that each turret specializes in killing certain enemies. A slow powerful upgraded turret would be excellent for killing squares but less suitable for killing stars.

The upgrades are:

- Faster Reload
- More Damage
- Faster turning of turret
- Increase Health
- Increase Range
- Increase splatter damage
- Select multiple targets in one go

V. Characters

<table>
<thead>
<tr>
<th>Character</th>
<th>Speed</th>
<th>Armour</th>
<th>Special</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triangle Enemy</td>
<td>normal</td>
<td>light</td>
<td></td>
</tr>
<tr>
<td>Square Enemy</td>
<td>slow</td>
<td>heavy</td>
<td></td>
</tr>
<tr>
<td>Circle Enemy</td>
<td>normal</td>
<td>normal</td>
<td>evasive movement</td>
</tr>
<tr>
<td>Hexagon Enemy</td>
<td>slow</td>
<td>heavy</td>
<td>spawns star enemies</td>
</tr>
<tr>
<td>Star Enemy</td>
<td>fast</td>
<td>low</td>
<td>spawned by hexgon enemy</td>
</tr>
</tbody>
</table>
VI. Story Overview

Enemies are invading your country; STOP THEM!

VII. Game Progression

Waves

Enemies will spawn in waves, or levels. Each wave will become more challenging for the user. The first waves will only contain one type of enemy; however the number enemy-types will increase when you reach a higher level. Also the amount of enemies will increase each wave. The duration of a wave will get longer each wave.