

RENDEZVOUS

Abhishek Agarwal(2014MCS2114)
Harinder Pal(2014MCS2123)

November 2, 2014

Abstract

A Strategy game using OpenGL.

1 Objective

The following describes the design of a strategy game we plan to implement. The game revolves around two teams located on diagonally opposite sides of a map aiming to destroy each other's temple. Each team will have two players protecting the team's temple. Stating the obvious the team first to destroy the enemy temple wins.

2 Play Modes

We plan to offer two play modes for the end user. One being the **Bot Mode**, and other being the **MultiPlayer Mode**. In the **Bot Mode**, there will be one player with three AI players. The **MultiPlayer Mode** will allow four players on different nodes to play together, two players on each team.

3 Outline of the game

1. Our game revolves around two teams Angels and Demons.
2. Each team will have its own team area on either side of the diagonal as shown in Figure. 1. The other team is not allowed to enter this area.
3. There is a common war area around the diagonal that both teams are allowed to enter.
4. The common war area around the diagonal will also have strategically located temples for each team.
5. There are 2 players per team. Therefore in total four players are allowed in MultiPlayer mode of the game.
6. The enemy team's team area is never visible.
7. The team's health is represented by the temple's health in the game. Destroying the enemy's temple means reducing enemy temple's health to zero.

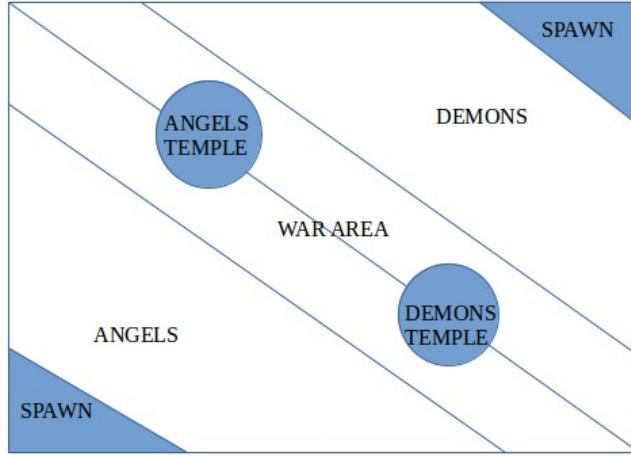


Figure 1: Bare outline of the map

8. Each player is assigned a hero. Each hero has his own health. Killing a hero means reducing it's health to zero. A hero is reborn after death in the team's spawn area.
9. A team's temple health is considerably greater than it's individual hero's health.
10. The team area and war area will have obstacles(stones/trees) located. The hero will have to find paths around these obstacles to their target locations.
11. Each hero is allowed to move in horizontal and vertical direction. Once a target location is identified, the hero will use A* to reach the destination based on above restrictions.
12. The hero while traversing can pick certain items which add to its capabilities. The items are further described in the document.
13. Each hero will have a basic attacking capability and a magic power. Thus, each hero will have two modes of attack : Basic mode and Magic mode. Heros are further described in the document.
14. Each team will have it's own spawn area. A hero when born/re-born will find itself in this spawn area. Hero's can refuel their health by traversing back to this spawn area.

4 Schematic Map Representation

We have internally divided our map area into a grid of 20 by 20. Consider the schematic diagram of our map in Figure 2. We have represented the map details for one team in a table. The other team area has been left blank for it is a copy and paste mirror image of the same around the diagonal.

*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	*
1	W	W	W	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	1
2	W	W	W	W	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	2
3	W	W	W	W	W	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	3
4	W	W	W	W	W	61	62	63	64	65	66	67	68	69	70	71	72	73	74	4	
5	2	21	W	W	W	W	W	81	82	83	84	85	86	87	88	89	90	91	92	93	5
6	3	22	41	W	W	W	W	W	101	102	103	104	105	106	107	108	109	110	111	112	6
7	4	23	42	61	W	W	W	W	W	121	122	123	124	125	126	127	128	129	130	131	7
8	5	24	43	62	81	W	W	W	W	141	142	143	144	145	146	147	148	149	150	8	
9	6	25	44	63	82	101	W	W	W	W	161	162	163	164	165	166	167	168	169	9	
10	7	26	45	64	83	102	121	W	W	W	W	181	182	183	184	185	186	187	188	10	
11	8	27	46	65	84	103	122	141	W	W	W	W	201	202	203	204	205	206	207	11	
12	9	28	47	66	85	104	123	142	161	W	W	W	W	221	222	223	224	225	226	12	
13	10	29	48	67	86	105	124	143	162	181	W	W	W	W	241	242	243	244	245	13	
14	11	30	49	68	87	106	125	144	163	182	201	W	W	W	W	261	262	263	264	14	
15	12	31	50	69	88	107	126	145	164	183	202	221	W	W	W	W	281	282	283	15	
16	13	32	51	70	89	108	127	146	165	184	203	222	241	W	W	W	W	301	302	16	
17	14	33	52	71	90	109	128	147	166	185	204	223	242	261	W	W	W	W	321	17	
18	15	34	53	72	91	110	129	148	167	186	205	224	243	262	281	W	W	W	W	18	
19	16	35	54	73	92	111	130	149	168	187	206	225	244	263	282	301	W	W	W	20	
20	17	36	55	74	93	112	131	150	169	188	207	226	245	264	283	302	321	W	W	*	

Figure 2: Schematic Map Representation

5 Graphical Map Representation

The graphical representation of our map respectively for both Demons and Angels is shown in Figure 3. Notice the visibility for both the teams.



Figure 3: Views of the Map

6 Notification area

The game is accompanied by an attribute area on both side of the maps, where the users can keep track of the game’s progress, etc. The schema for such an area is clearly depicted in Figure 4.

Image : My Team		Image : Enemy
Image : Name(Angels/Demons)		Image : Name(Angels/Demons)
Image : Temple		Image : Temple
Image : Health	Text : %age	Image : Health
Image : Hero	Text : Name	Image : Hero
	Image : Stunner	
	Image : Power Mode	
	Image : Curse Stun	
Image : Health	Text : %age	Image : Health
Image : Speed	Text : %age	Image : Health
Image : Strength	Text : %age	Image : Health
Image : Hero	Text : Name	Image : Hero
	Image : Stunner	
Image : Health	Text : %age	Image : Health
	Image : item timer on/off	Image : Wall
	Image : magic timer on/off	Image : Item Taken / not taken
		Image : Enemy Stunned not stunned

Figure 4: Schematic view of the attribute space

7 Complete Map look

The map in its entirety is shown in Figure 5. Notice the attribute area on either side.

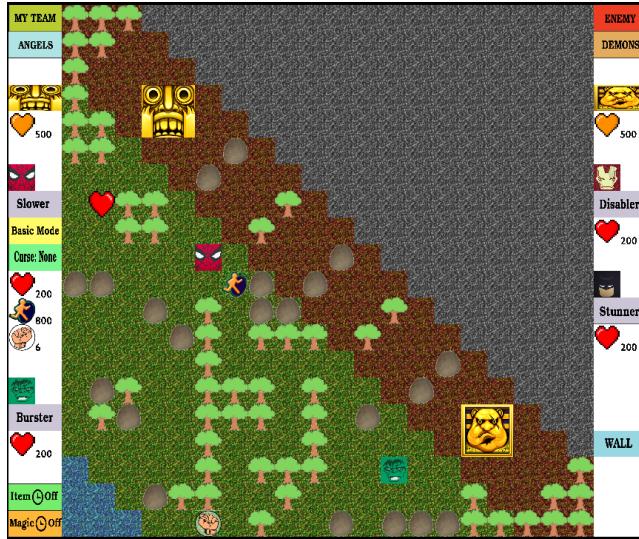


Figure 5: Complete Map with attribute space

8 Hero Details

We have four heroes to play with as shown in Figure 6.

Each hero has a unique magic power as described:



Figure 6: Heroes

1. Stunner: Freezes the enemy player from attacking, moving, etc. for five seconds.
2. Slower: Slows down the enemy player for five seconds. Reduces its movement speed.
3. Disabler: Disables the enemy player from using any magical power for five seconds.
4. Burster: Does burst damage in a single shot.

A hero is not allowed to use magic power in succession. It has to wait for some time before it can re-use the magic.

When a player uses it's magic power on an enemy player, the enemy player is said to be cursed.

9 Game Stats

Each temple's initial health is 500. Each hero's initial health is 200.

A hero has following attributes besides it's health:

1. Strength: Damage done on a single attack (MIN 0 MAX 50)
2. Speed: Movement speed (MIN 100 MAX 1000)

The above attributes depend on the hero type, as follows:

1. Stunner: Strength - 4, Speed - 600
2. Slower: Strength - 4, Speed - 700
3. Disabler: Strength - 6, Speed - 800
4. Burster: Strength - 6, Speed - 500

10 Item Details

We have four items in our game. These items add to certain capabilities of the hero.

1. Speed Gain: Increases movement speed of the player by 25.
2. Strength Gain: Increases damage capability of the player by 1.
3. Temple Healer: Increases health of the player's temple by 10.
4. Health Gain: Increases health of the player by 5.

The above stats are not final We will take into account fairness when deciding final stats as we proceed with the implementation.