

Computer Games Laboratory

Custodian by Qoogle

IV Alpha Release

Zixiang Wang Mingyang Li Anil Celik Maral Tatev Tsokolakyan

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4. Alpha Documentation

4.1 Targets from Last Milestone

4.1.1 Low Target

- Tutorial level
 - Popup hint
- Duplication

4.1.2 Desired Target

- More cards
- More enemy
- More battle level
- Audio
- Event level
- Main menu
- Setting menu
- Animation
- AI more random

4.2 Detailed Process Introduction

4.2.1 Tutorial Level

Because the game mechanics are relatively complex, it is difficult for players to start the game directly without a tutorial. We have designed a tutorial level to guide players step by step. This tutorial level also contains a background story telling and a new card as a small reward. In the meantime, the player can learn the mechanism of duplication, which is the core mechanic of deck building and further game levels.

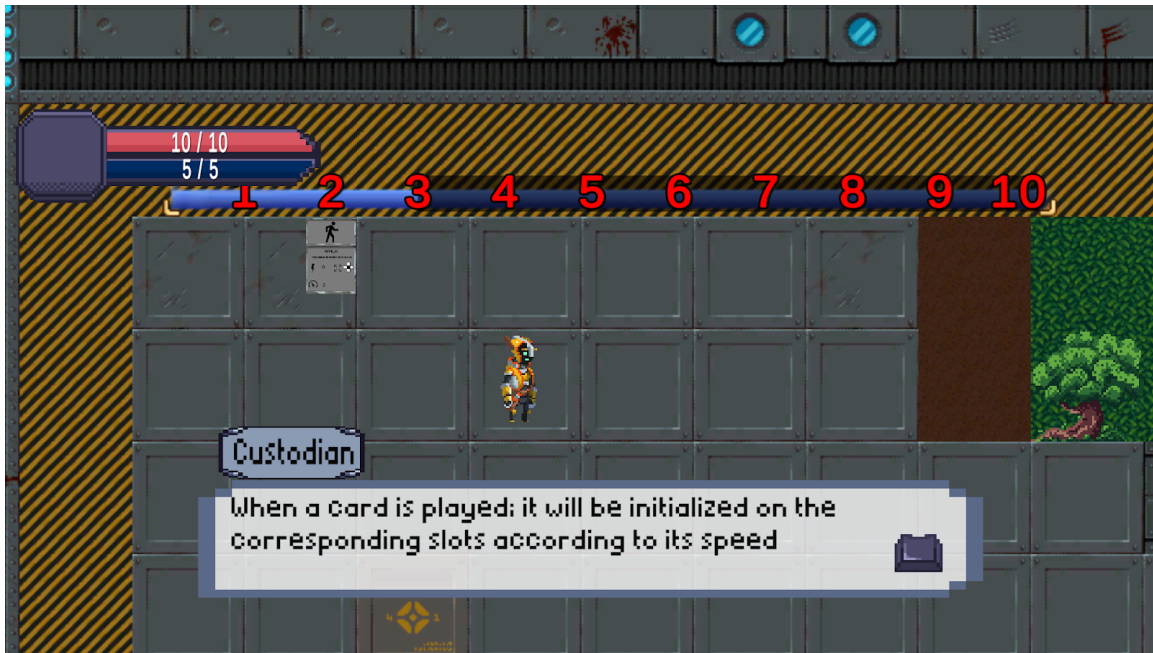


Figure: Tutorial level

4.2.2 Path Finding Algorithm

The path finding algorithm is used in AI implementation, especially in the scenario that enemies want to be aligned with the player and they are either too far or there is an obstacle between them. We used the A* algorithm for the path search. In the algorithm we use the environment data loaded in Battle Data to determine obstacles and walkable tiles. Our path search takes source and destination coordinates, initializes start position info for the cell neighbors, which consists of weight costs (G - distance from starting cell, H - distance from ending cell, F - sum of G and H). For each neighbor if it is valid, meaning that it is not an obstacle, if it is not the destination we calculate the weight costs and then add it to the list to repeat the process until there is no cell in the list. Then we simply return the traced path.

4.2.3 New Cards and Enemies Showcase

In the next level we have introduced 4 new characters with their animations. For each new character we designed a set of cards that they'll use. With each card specific animation and audio effect is being triggered. Also we did minor changes in card design, for making them more UI friendly.

Each enemy has its state and behavior according to the states. We assign weight to each of the states, and the behavior is calculated by a set of state weights. The card of the behavior with maximum amount of weight is selected and played by the enemy. For most of them the

choices are decided by their health, cards, alignment, Custodian's distance and path. We also have undefined/random behaviors so the enemies wouldn't be predictable.



Figure: Illustration of enemies and their cards

4.2.4 Start Menu and Setting Menu Showcase

To enable the player to customize certain aspects of the game, load a previous save, save the current game and quit the current play to go to the start menu, we designed an in game settings menu and a start menu.



Figure: In Game Menu

The in-game menu is brought up by pressing the escape button which brings up the menu shown in “Figure: In Game Menu”. The settings menu can be closed down by pressing the escape button again or clicking on the “Resume” option. Hovering over one of the options highlights that option and clicking on the option makes the clicked option bounce slightly to give the player visual feedback.

Pressing the “World Map” option brings up the overall game map which shows all of the levels available in the game. The world map can be used to choose other levels.

4.2.5 User-friendly UI, Animation and VFX Applying

As previously mentioned, since the game mechanic is relatively complex, we need to help players understand the game in every place. Besides the tutorial level, we adapt UI such as adding a damage popup to let players notice the change in the battlefield. We are also going to add the corresponding animation and VFX to make the game give more visual feedback.

4.2.3 World Map and Event Level



Figure: World Map

The world map shows the victory path from the tutorial level to the final boss level. There is an event level after each battle level. So the whole game flow looks like: tutorial level -> battle level -> event level -> next battle level -> next event level -> final boss level. However, for a game demo we were not planning to design more levels, so our target was to have at least one for each, and better two battle levels. Meanwhile, this world map stores the current game process. Players can click continue from the start menu and see their current process, or click to enter the next one.

In the event level, our custodian encounters a scientist who can help it get stronger. There are multiple options to improve our hardware but our custodian has limited hardware spots so it must choose wisely.

Currently, the level design for the event level is done. However, the in-game cutscene between the scientist and custodian is still in progress. In "Figure: Event Level", you can get a glimpse of the level design for the event level.

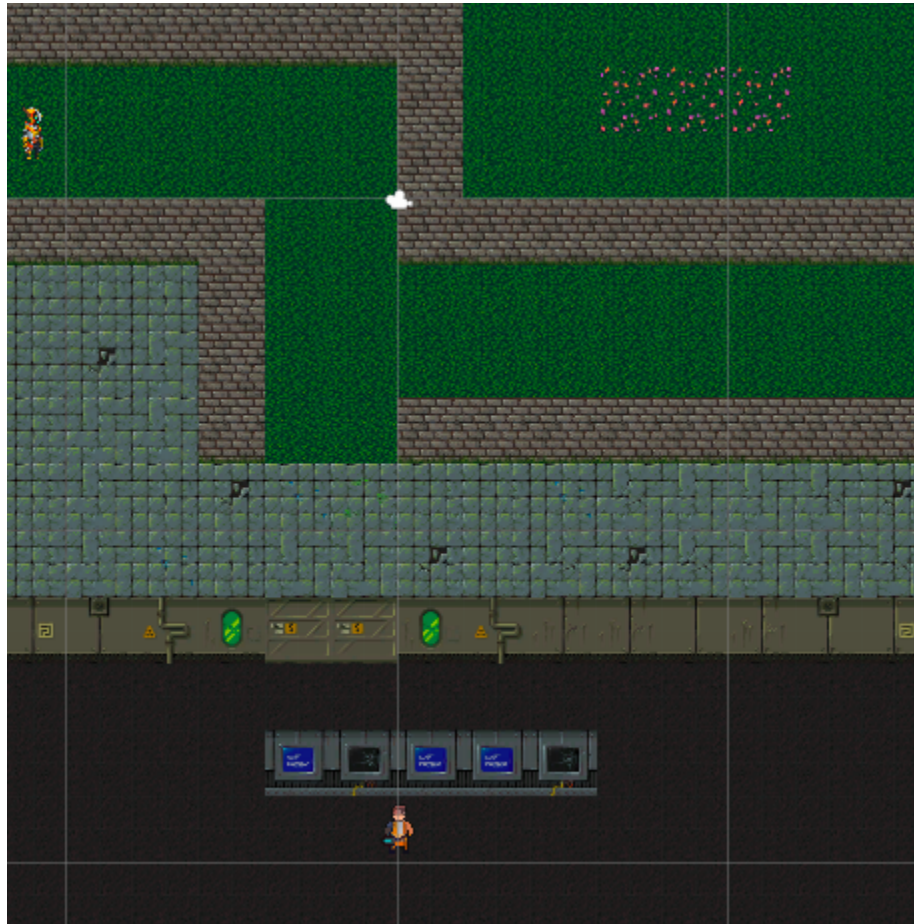


Figure: Event Level

4.3 Future Tasks

4.3.1 Desired Target

- Event level
- Bug fixing

4.3.2 Nice To Have Target

- One more battle level

4.4 Task Timeline (updated)

	Kick-off			Milestone1: Game Design		Milestone2: Prototype			Milestone3: Interim demo			
Timeline	19.10	26.10	2.11	9.11	16.11	23.11	30.11	07.12	14.12	21.12	28.12	4.1
Brainstorming	Tatev											
Game description	Tatev											
Time schedule	Tatev											
Assessment	Tatev											
Presentation slides	Tatev											
Cards prototype				Tatev								
Character prototype				Wang								
Map prototype				Anil								
UI prototype				Li								
Assets preparation												
Presentation slides					Wang/Anil							
Show case scenario				All	All							
World map								Tatev				
Code structure design						All						
Battle scene game logic						Wang	Wang					
Battle scene UI						Li	Li	Li				
Basic card implementation						Tatev	Tatev					
Basic enemy						Anil	Anil	Anil				
Deck						Li						
Battle map						Tatev	Tatev					
Prefabs						Tatev	Tatev	Tatev/Wang/Li				
Testing & debugging							Wang	Wang				
Function adaptation						Wang	Wang	Wang				
Tutorial level						Behind Schedule	Behind Schedule	Behind Schedule				
Presentation slides								Li/Anil				
Sheep enemy optimization									Wang/Anil			
Audio(BGM, sound effect, click effect ticking)										Tatev	Tatev	
Lab worker									Tatev/Wang	Tatev	Tatev	Tatev
Alfa leader									Tatev			
Alfa solder									Wang	Wang	Wang	Wang
Hound									Tatev	Tatev	Tatev	
Animation for all									Tatev	Tatev	Tatev	Tatev
Battle map design for level II									Behind Schedule	Behind Schedule	Behind Schedule	Behind Schedule
Prefabs (card)									Tatev	Tatev	Tatev	
New Card Implementation in level II									Wang			
Event level									Behind Schedule	Behind Schedule	Behind Schedule	Anil
Enemy action indicators(A* algorithm)									Wang	Wang	Wang	
Environment Data												Wang/Tatev
Duplication									Li	Li	Li	
Tutorial script										Li	Li	
Load Data function											Wang	
Main menu											Anil	Li
Settings menu											Anil	Li
Continue UI work									Li	Li	Wang/Li	Li
Bug fixing and adaptation									Wang		Li	Li
Presentation slides												Anil/Li/Tatev
Questionary												
Build executable												
Analytics												
Presentation slides												