

Ar 'n' Dungeon

Design Document

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1 PITCH

1.1 THEME

This year's topic is 'Arcade' which is defined by the dictionary of the largest search engine Google as

1. a covered passageway with arches along one or both sides.
 - a covered walk with stores along one or both sides.
 - a series of arches supporting a wall, or set along it.
2. short for video arcade.

The most used encyclopedia Wikipedia supports our developed idea, as well:

Other types of arcade-style games include [...] beat 'em up games (including fast-paced hack and slash games [...]).

1.2 GAME

1.2.1 Elevator Pitch

This game combines fast hack 'n' slay mechanics with fresh new levels known from Roguelikes, attributes and attribute-altering items from Roleplaying and mind challenging puzzles. The whole experience is crowned with the extension of – up to 4 players – local cooperative multiplayer.

1.2.2 Gameplay Description

The base of the whole game is oriented on Roguelikes which means that the player has to traverse a number of semi-random generated areas and fulfill a certain number of challenges to proceed into the next stage. We defined the areas as floating islands with different kinds of bridges between them.

The challenges on the islands include:

- ✦ Eliminating aggressive enemies who are controlled by an evil AI
- ✦ Solving puzzles consisting of button-pressing and/or moving objects to certain spots and
- ✦ Evading visible and hidden traps

Everything is rewarded with score points and/or items which both enhances the player's ability to progress further in the current stage and total run. If the player is willing he can search additional rewards which are spread over the whole map.

The round ends with the death of all players after presenting the reached score which is stored in a global highscore list.

The player unit has several attributes like health, attack strength and attack speed and several abilities which help him to defend himself from aggressive enemies or traps. Before the run start the player can choose between classes which start with different default

attributes and attacks. With increasing score, the player's attributes and ability strength increases. The movement is kept on a plane with the possibility to jump.

The gameplay is extended by the feature of local cooperative multiplayer via multiple controllers connected to the same machine. The screen is not split into several tiles but the camera distance to the players adapts to captures as much as possible. Observed is the scenery from a -45 angle pitched top-down camera perspective.

With increasing player count the difficulty of the challenges increases as well. Each challenge scales differently.

1.2.3 Storyboard

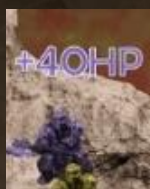
This chapter displays the basic gameplay of a single stage in a storyboard fashion.



The heroes start off on single island where's only one way to follow. All have full health and are ready to attack. Any points from the previous stage are carried over as well as the heroes' levels.



Upon seeing enemies, the heroes engage into a fight to eliminate the aggressive thread. Many crushing hits are exchanged and reduce the hit-points of each other.



After the bitter fight the wounds are counted and the dropped loot of the enemies is inspected. The players have to decide which item is collected by whom.

Every item has different has different abilities. Some modify the base attributes. Some modify the current player state.



Reaching for the treasure – containing valuable score points and rare items – the heroes get overwhelmed by enormous boss monster who guarded the mighty chest.

For one of our heroes this encounter ends deadly. He strides away into the darkness awaiting his next change to rejoin the adventure.



Closed doors and open bridges also halt the dwarf warriors on their quest to bring home the Crystal of Mithe. But being the skilled blacksmiths and engineers – which they are – they overcome such obstacles with ease.



Until the very last island of the dungeon every step has to be taken carefully. Hidden traps lie in the darkness and wait for careless wanderers to strike them down. Only the one who reaches the end are rewarded.

1.2.4 Technical Achievement

This game contains multiple challenges which might not seem very technical in the sense of Computer Science but are technical challenges in the terms of Games Engineering.

The challenges include:

- Developing a fast level generator that ensures our needed properties on which the further gameplay relies on
- Mastering the yet unknown problems that come with multiple player units that are observed by only one camera
- Balancing the gameplay – including enemies, traps and puzzles – such that it feels arrogant but not devastating

1.2.5 "Big Idea" Bullseye



1.2.6 Development Schedule

	Working on	Ongoing			Functional Minimum				Low Target				
		Design Doc	Concept Art	Physical Pr.	Unit Mechanics	Menu	Level Generation	Hot Seat	Models	AI	Difficulty Scaling	Stats / Items	Sounds
Physical Pr.	Week 17	█	█	█	█		█		█				
	Week 18	█	█	█	█	█		█					
	Week 19	█	█	█	█	█	█	█					
Interim	Week 20	█				█			█	█			
	Week 21	█				█			█	█	█		
	Week 22	█				█			█	█	█	█	█
Alpha	Week 23	█					█		█				
	Week 24	█					█		█				
	Week 25	█					█		█				
Test	Week 26	█											
	Week 27	█							█				
Final	Week 28	█							█				
	Week 29	█							█				
	All	Daniel	Martin	Philipp	Lukas	Christoph							

	Working on	Desired Target				High Target			Extras	
		Animations	Puzzles Mechanics	Skills	SFX	Different Classes	Level Gen Regions	Online Highscore	Tutorial	Online Multiplayer
Physical Pr.	Week 17									
	Week 18									
	Week 19									
Interim	Week 20	█								
	Week 21	█								
	Week 22									
Alpha	Week 23		█							
	Week 24		█	█	█					
	Week 25			█	█					
Test	Week 26									
	Week 27									
Final	Week 28									
	Week 29									

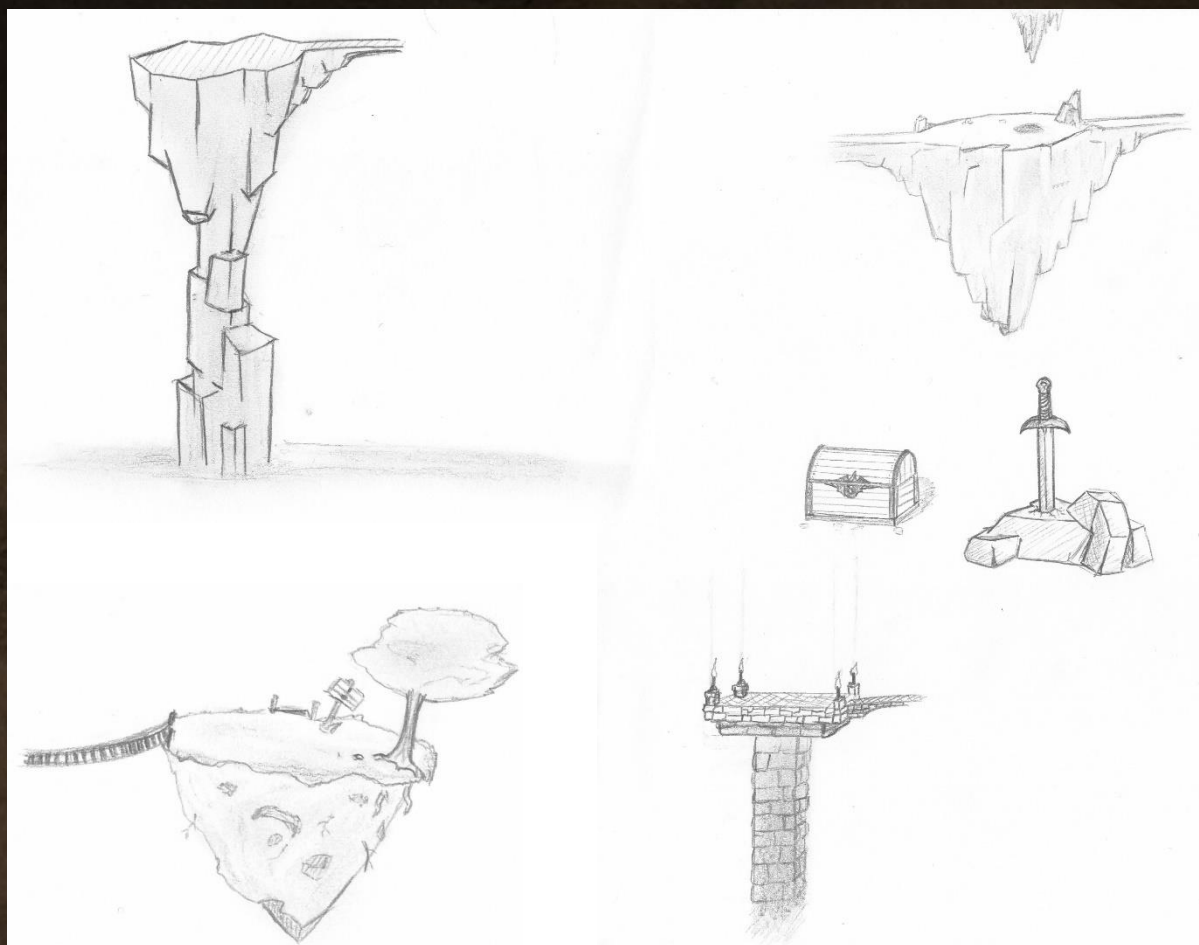
1.2.7 Assessment

The adventure a player chooses to go on keeps the head in constant motion: In the battle you have to be tactile and develop strategies with your human companions. Aside the staggering fights you have time to take a breath while you resolve deadly, mindboggling contraption mechanism which block your way.

No run is the same. You might remember this puzzle but does it do the same here? Different region in which the heroes have to survive hold new dangers and treasures.

Are you brave enough to breach new borders and break the highscore with or against your friends? Or even against the whole world?

1.2.8 Concept Art



2 PHYSICAL PROTOTYPE

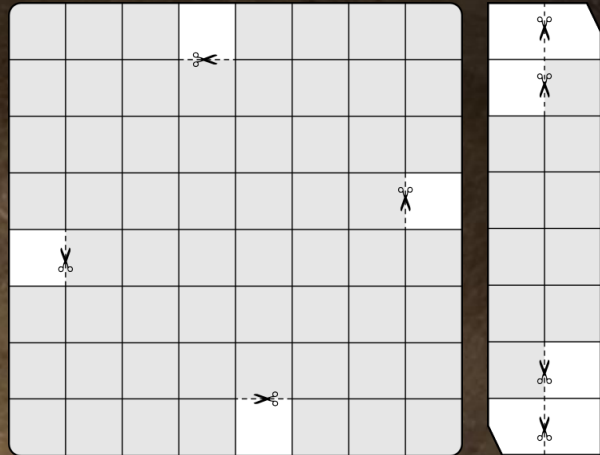
2.1 ELEMENTS

2.1.1 Islands & Bridges

The basis of the board consists of split tiles with an 8x8 grid called 'island' and a 2x8 grid called 'bridge'.

The bridges connect the islands and thus create the given path the players can walk on.

Every island has 4 possible sockets where a bridge can be inserted to connect a further island.



2.1.2 Tokens

The game consists of two types of tokens: player and enemy. Each of the four player tokens is controlled by a player. The enemy tokens are controlled by the Game Master. All stats and abilities are described in the [Element Overview](#) sheet.

Player

The player token can move up to 4 grid cells per round in every direction and can attack within a range of 1 grid cell around him. The visual range of the player – in which island, enemies and chests are revealed – is 6 grid cells in every direction.

They start with a maximum of 100 health points. The primary attack deals 10 damage points to a single enemy whereas the secondary attack damages all enemies in range with 10 damage points.

Any damage the player token receives is added up and subtracted from the current health points. The result is written into the 'Health' row in the [Player Timeline](#). At the end of the stage each player token with more than 0 health points has a value of 2 score points.

The player tokens can be identified by the number of green rings.



Enemies

The enemy tokens attack the player token on sight and follow him until the player token is 2 fields ahead of the enemy token. They lose interest and stay at their last position.

Any damage which is received is marked down in the [Damage Matrix](#). At the end of the [Damage Phase](#) all incoming damage is summed up and subtracted from the health points. If the health points are below 0 the token is defeated.

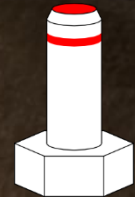
There are 3 types of enemy tokens: Weak, Strong and Boss.

Weak

The weak enemies represent the weakest form of enemies. They can move up to 4 grid cells and can attack everything within a range of 1 grid cell.

Its health starts at 20 health points and it deals a total of 5 damage points to a single target per round.

When defeated this enemy token has a value of 1 score point.



Strong Enemies

The strong enemy type behaves similar to the weak with the difference that this token can only move 2 grid cells, has 70 health points and deals 20 damage per round to a single target.

When defeated this enemy token has a value of 2 score points.



Boss Enemies

The boss enemy differs from the other enemy tokens. It starts with 400 health and can only move 1 grid cell per round.

The attack deals 50 damage within a range of 2 fields but has a charged up time of 3 rounds.

When defeated this enemy token has a value of 3 score points.



2.1.3 Traps and Loot-Chests

Before the game begins, the Game Master marks on the [Trapboard](#) on which grid cell what type of enemies will appear, where and how big the traps are and on which fields the Loot-Chests are placed when discovered.

Traps

In this prototype all traps are hidden and therefore have to be marked on the [Trapboard](#). When a player or enemy token traverses a trap-cell the trap is activated and deals its 5 damage points to that specific token.

After that the trap is disabled and cannot be activated again.

Loot-Chests

The Loot-Chest are revealed when they are within the player tokens' visual range.

The 3 score points of the Loot-Chest are collected when the player token is placed on one of the four grid cells of the Loot-Chest.



2.1.4 Action-Cards with Timeline

The simulation of simulations player actions – as it will be in the video game – is done by action cards. The players choose hidden one or more action cards which they want to perform or activate in the round.

Abilities cards are activated before basic action cards.

Basic Action-Cards

The basic actions of a player focus on the basis core mechanics of the game: Damage and Movement.

Primary Attack

The primary attack is the simplest but most efficient attack of the player. The attack has no activation nor cooldown time and can damage a single target for 10 points within the player's attack range.

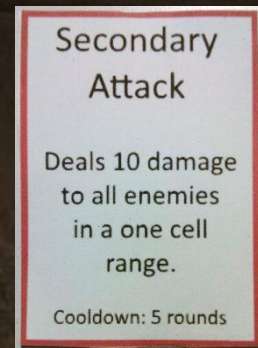
The total damage can be altered by the [Damage Boost](#) ability.



Secondary Attack

The secondary Attack extends the primary attack. It can also be activated immediately but needs a 5 round cooldown after that. The 10 damage points are applied to all enemies within the attack range of the player.

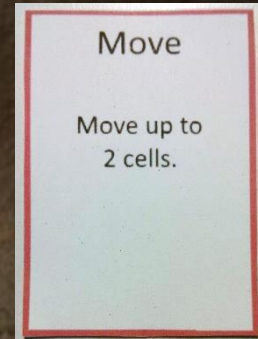
The total damage can be altered by the [Damage Boost](#) ability.



Move

The most basic action is the ability to move the token. The player can move the token wherever he wants on the grid with the exception that he can't place the player token on top of an enemy token.

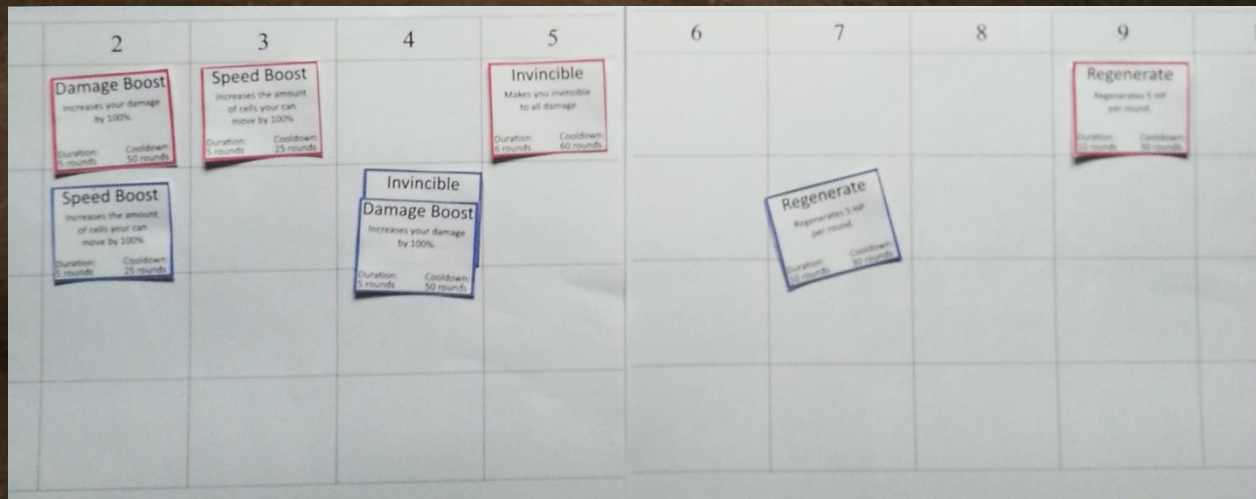
The number of grid cells the player can travers can be altered by the [Speed Boost](#) ability.



Ability Action-Cards

The additionally abilities of the players are also represented by action cards. Each ability has duration time – which indicates how long the ability lasts when activated – and a cooldown time – which indicates how long the player has to wait until he can activate it again. The duration time is visualized by the [Ability Duration Timeline](#) while the cooldown time is tracked within the [Player Timeline](#)

Ability Duration Timeline



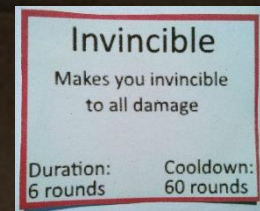
In the prototype the abilities were limited to Invincibility, Health Point Regeneration, Damage Boost and Speed Boost.

Invincibility

Invincibility reduces the damage a player token receives to 0.

When an enemy notices that his attack has no effect it changes the focus onto another player token.

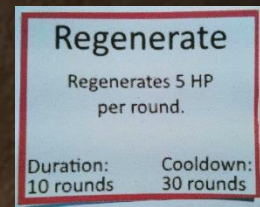
The ability is active for 6 rounds and can be activated again after 60 rounds.



Health Point Regeneration

Health Point Regeneration increases the health points of the player by 5 points every round. The maximum health point count is still capped at 100 points.

The ability is active for 10 rounds and can be activated again after 30 rounds.



Damage Boost

Damage Boost doubles the damage of the player token to a total of 20 damage point.

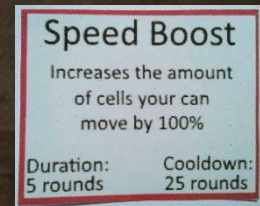
The ability is active for 5 rounds and can be activated again after 50 rounds.



Speed Boost

Speed boost doubles the number of grid cells a player token can pass per round to a total of 4 grid cells.

The ability is active for 5 rounds and can be activated again after 25 rounds.



2.2 GAME RULES

Before the game starts the Game Master creates a random path of islands which is unknown to the other players. He marks down the position and strength of the enemies, the position and size of the traps, the position of the Loot-Chests and the end of the stage.

After that the first island with a bridge is placed down on the table. The player tokens are positioned on that island such that they have nearly equidistance to the bridge.

After that the game starts with the first of the 9 phases which repeat from now on until the end of the stage.

Before each round the Game Master makes a mark below the round number on the Player Timeline and the Enemy Timeline.

2.2.1 Players – Choose & Execute Action

Choose

In the first phase of the round all players choose one or more action cards and lay them face down on the table.

When every player has chosen his actions the cards are revealed.

Execute

The players execute their action one after the other starting with the first player.

Abilities with a duration time are transferred to the Ability Duration Timeline.

The Game Master takes note of the cooldowns of all actions played on the Player Timeline.

2.2.2 Game Master – Choose & Execute Action

Choose

Since the enemies attack the player which they spotted first there's no need for the simulation of simultaneous actions for the Game Master since all enemies are controlled by a single instance.

Execute

The Game Master moves each token and tells the players who the enemy tokens will attack.

2.2.3 Game Master – Damage & Healing Calculation

Damage

The damage is also dealt in a round-bases approach first the players then the enemies.

To keep everything in balance the enemies stay alive and deal their damage until the end of the phase even if they are defeated.

From players to enemies

The damage an enemy takes from the players is calculated using the [Damage Matrix](#). The total damage points are subtracted from the current health points of the enemy token and noted on the [Enemy Timeline](#).

From enemies to players

The damage a player takes from the enemies is directly subtracted from the current player's health points. The health points which are left are carried over to the 'Healing' phase.

Healing

If a player has the [Health Point Regeneration](#) ability active the health points which are left from the 'Damage' phase are increased by 5 health points.

2.2.4 Players – Ability Duration Update

All abilities which lie on the [Ability Duration Timeline](#) are move 1 field to the left thus decreasing the current duration time of the ability by 1.

If an ability has a duration time of less than 1 the card goes back to the player and has to be laid face down. The action card stays face down until the cooldown mark of the ability – which is marked on the [Player Timeline](#) – is reached. Then the ability is ready and can be activated again.

2.2.5 Game Master – Score & Map Update

At the end of each round the health points of each token on the map are checked. If a token has 0 or less health points it is remove from the map.

If the token is an enemy the players' score is increased by the value of the token. If this is last round of the game every player whose health points are greater than 0 increases the score additionally by 2 score points.

The score is marked down at the bottom of the [Game Phases](#) sheet.

2.3 SHEETS

2.3.1 Global Sheets

Element Overview

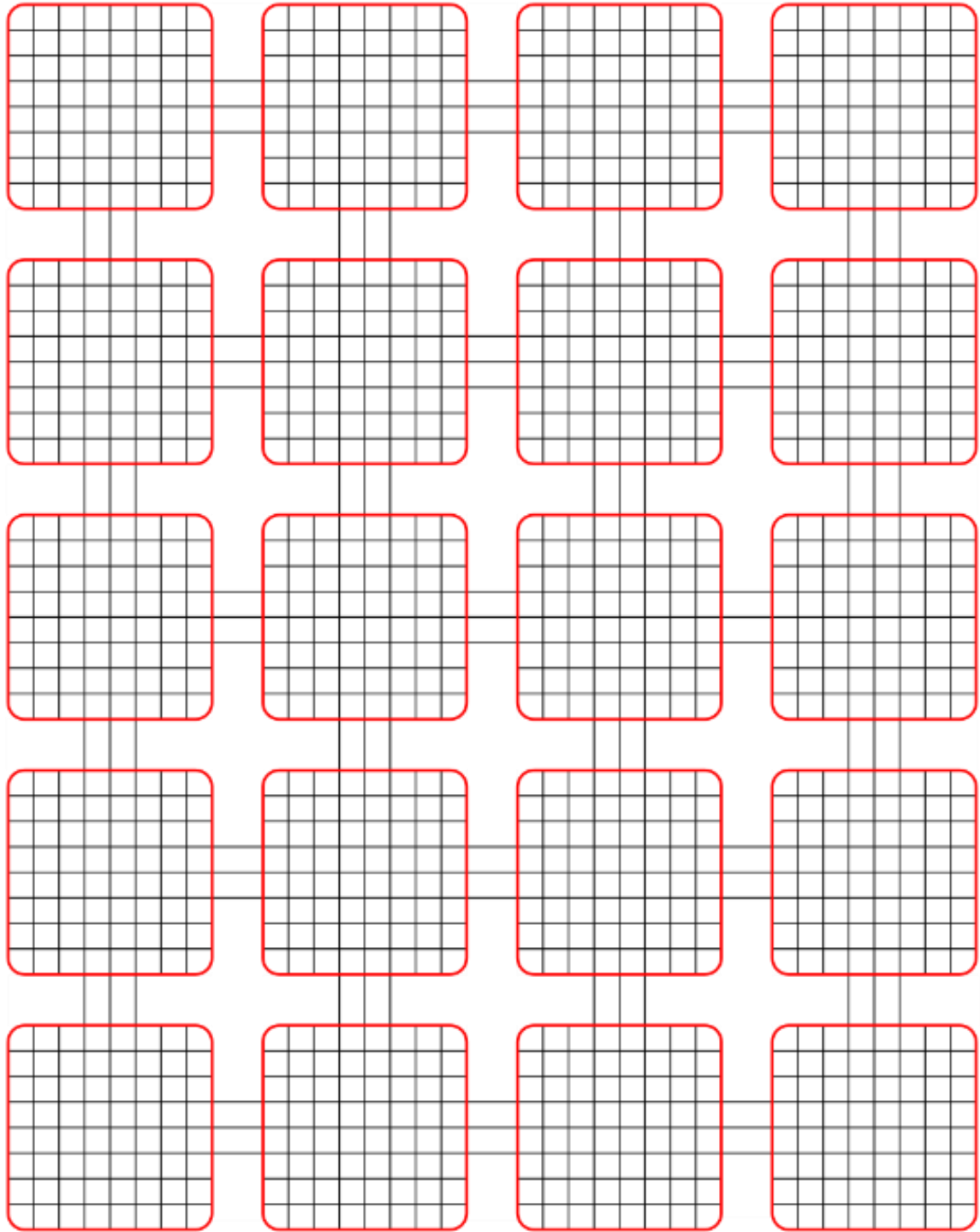
Team	Players			Enemies						
Strength	Player			Weak		Strong		Boss		
Stats										
Health	100 HP			20 HP		70 HP		400 HP		
Attack Range	1 Field			1 Field		1 Field		2 Fields		
Score	2 Points			1 Point		2 Points		3 Points		
Actions	Cool-down	Effect		Effect		Effect		Charge Time	Effect	
Move	0	2	Fields	4	Fields	2	Fields	0	1	Fields
Primary	0	10	Dmg	5	Dmg	20	Dmg	3	50	Dmg
Secondary	5	10	Dmg 360°							
Ability	See table									
Abilities	Duration	Cool-down	Effect							
Invincibility	6	60	const	HP						
HP Regen	10	30	+5	HP						
Dmg Boost	5	50	+100%	Dmg						
Speed Boost	5	25	+2	Fields						
Item	Chest			Trap						
Effect	+3	Points		5	Dmg					
Visibility	Visible			Hidden						

Game Phases

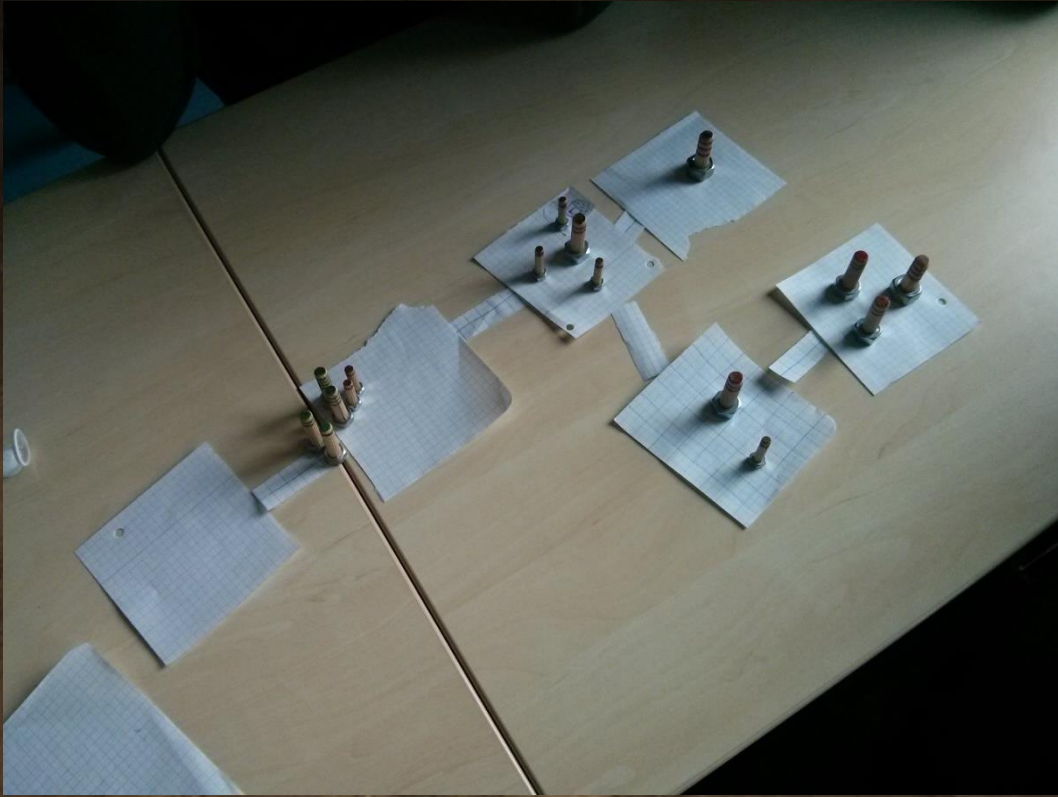
1. Choose Action	Players	
2. Execute Action		
3. Choose Action	Game Master	
4. Execute Action		
5. Damage		
6. Healing		
7. Skill Duration	Players	
8. Score Update	Game Master	
9. Map Update		

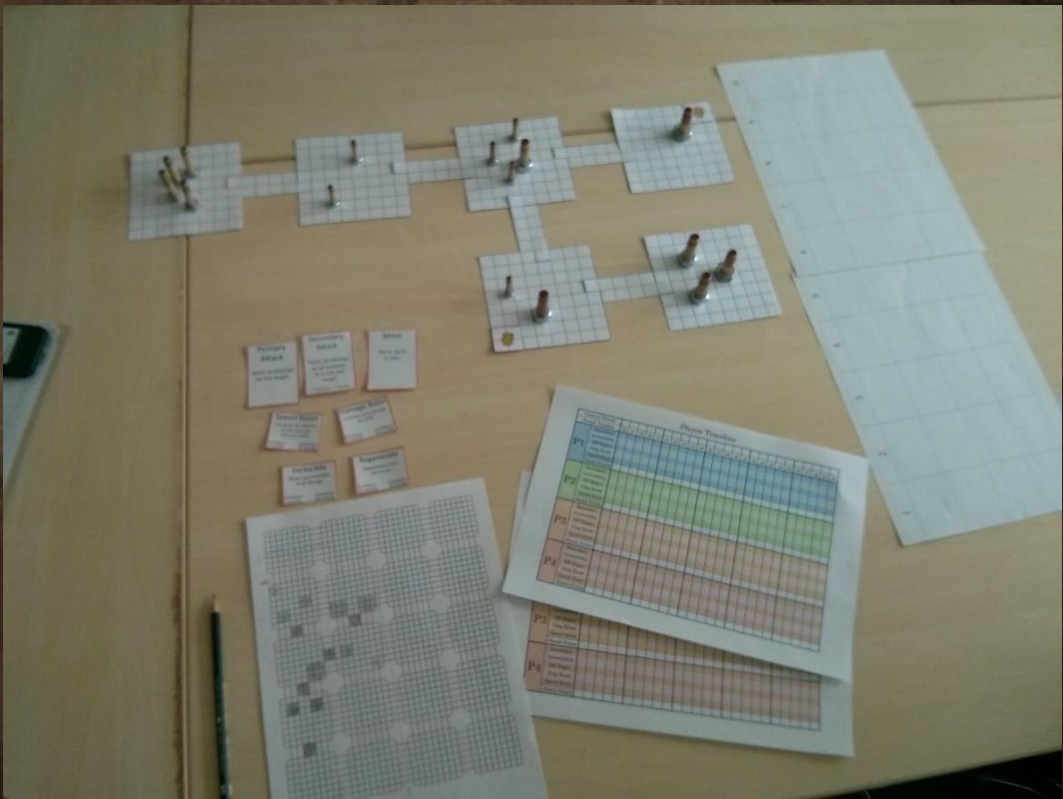
Score:

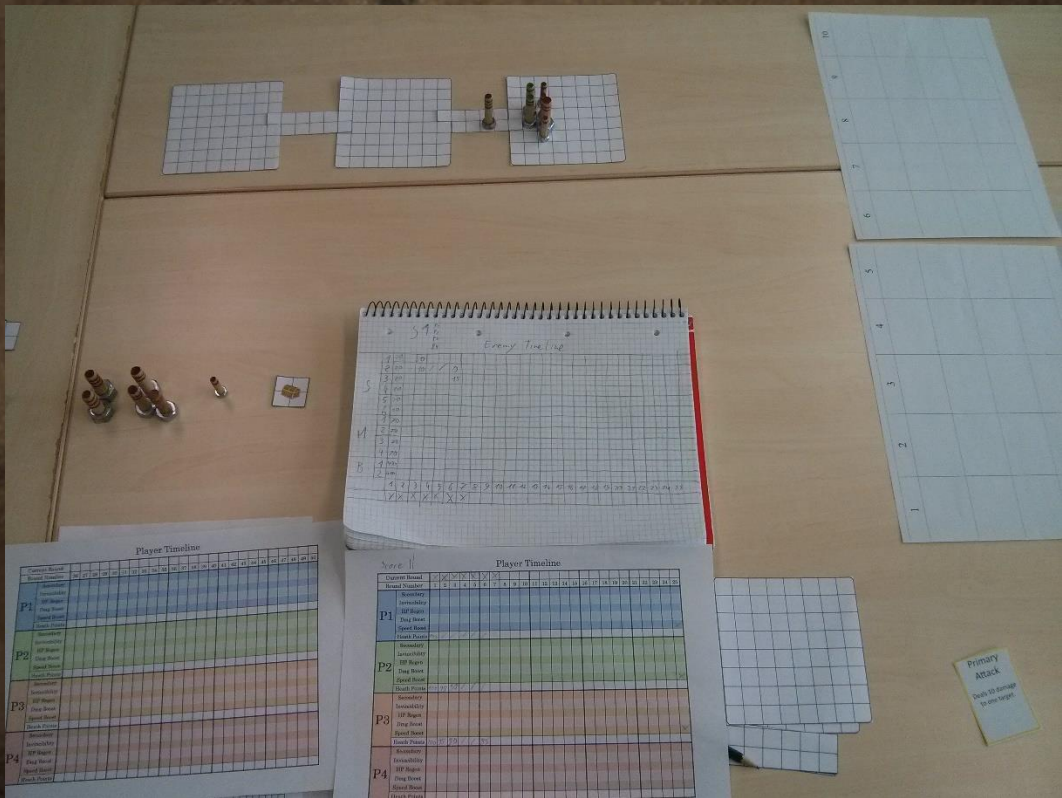
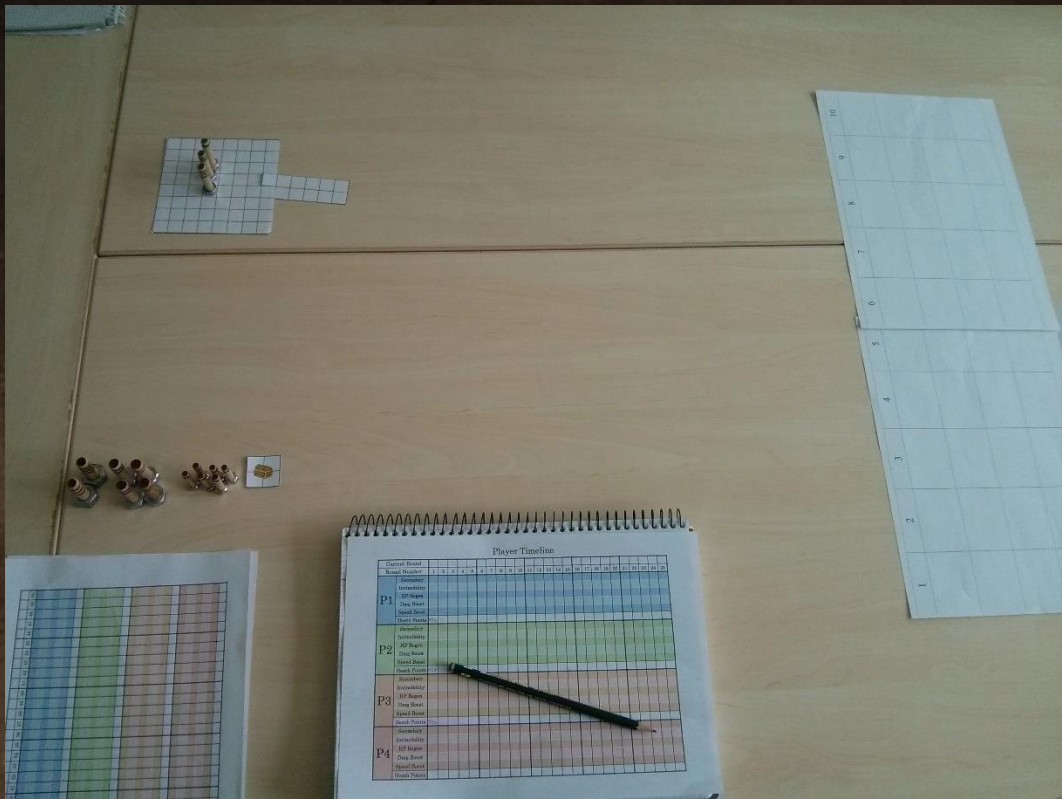
Trap Board



2.4 PHOTOS







3 INTERIM

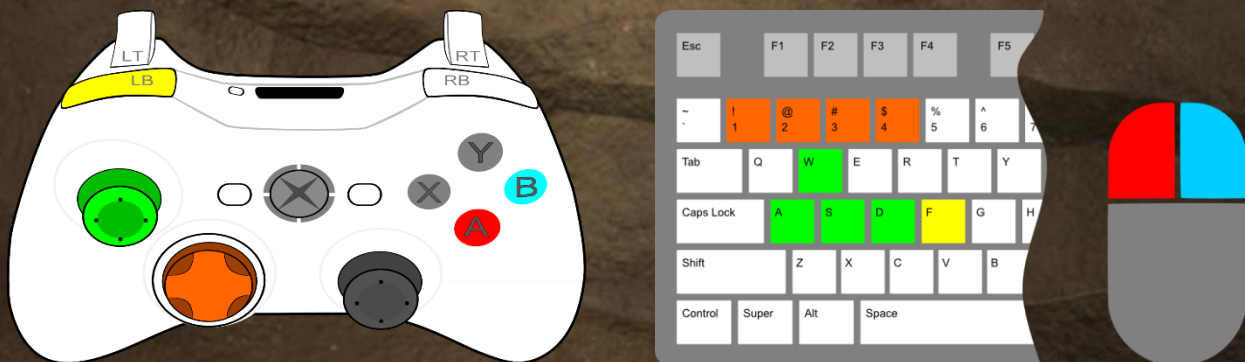
3.1 FUNCTIONAL MINIMUM

3.1.1 Unit Mechanics

Everything in the scene which moves is a unit: Player characters and enemies. They have several attributes: Attack Damage, Experience, Health Points, Max Health Points and Experience Level.

For the players applies the following input scene:

The movement inputs are highlighted with **GREEN**. The direction is absolute since the camera is not rotating. The primary attack is bound to the more common key marked in **RED** whereas the secondary attack is highlighted **CYAN**. Additional skill can be activated with the **ORANGE** number keys on the keyboard or the D-Pad on the controller. If a player is lost on the map since he's out of the camera's FOV he can press the **YELLOW** key to focus on his character.



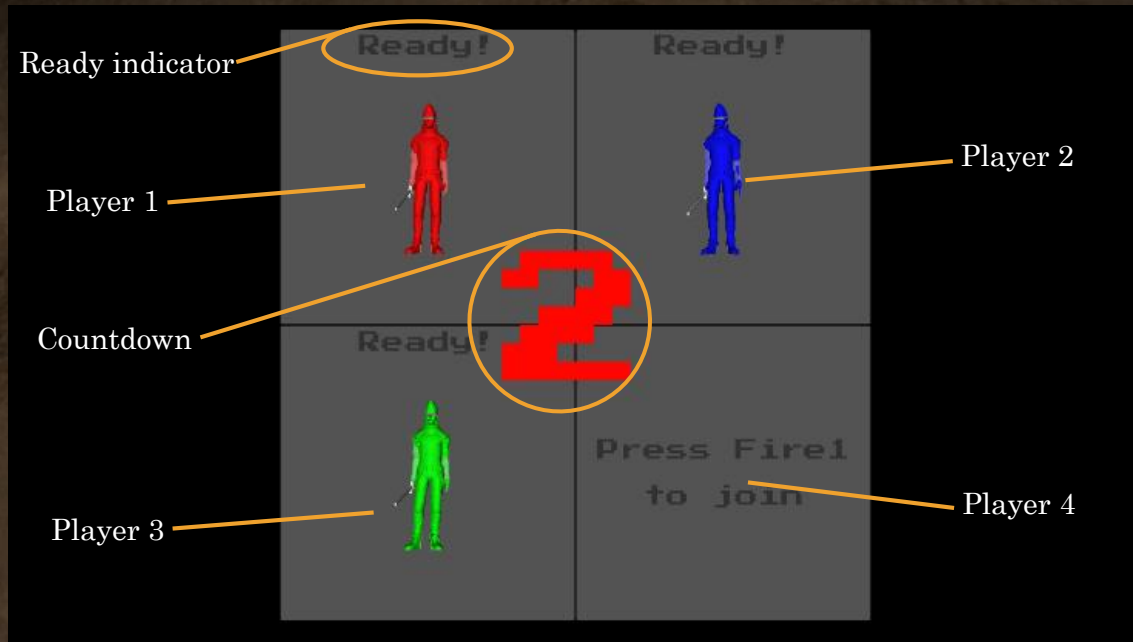
The enemy units are controlled by the AI explained in the [Artificial Intelligent](#) chapter.

3.1.2 Basic UI

Start Menu

The current menu is right before the stage starts. When a player the primary attack button on this input device the next free slot is allocated to him.

When all players are ready to start the stage the hit the fire button again and a countdown from 5 to 0 starts. When the countdown hits 0 the stage starts and the player can control their characters.



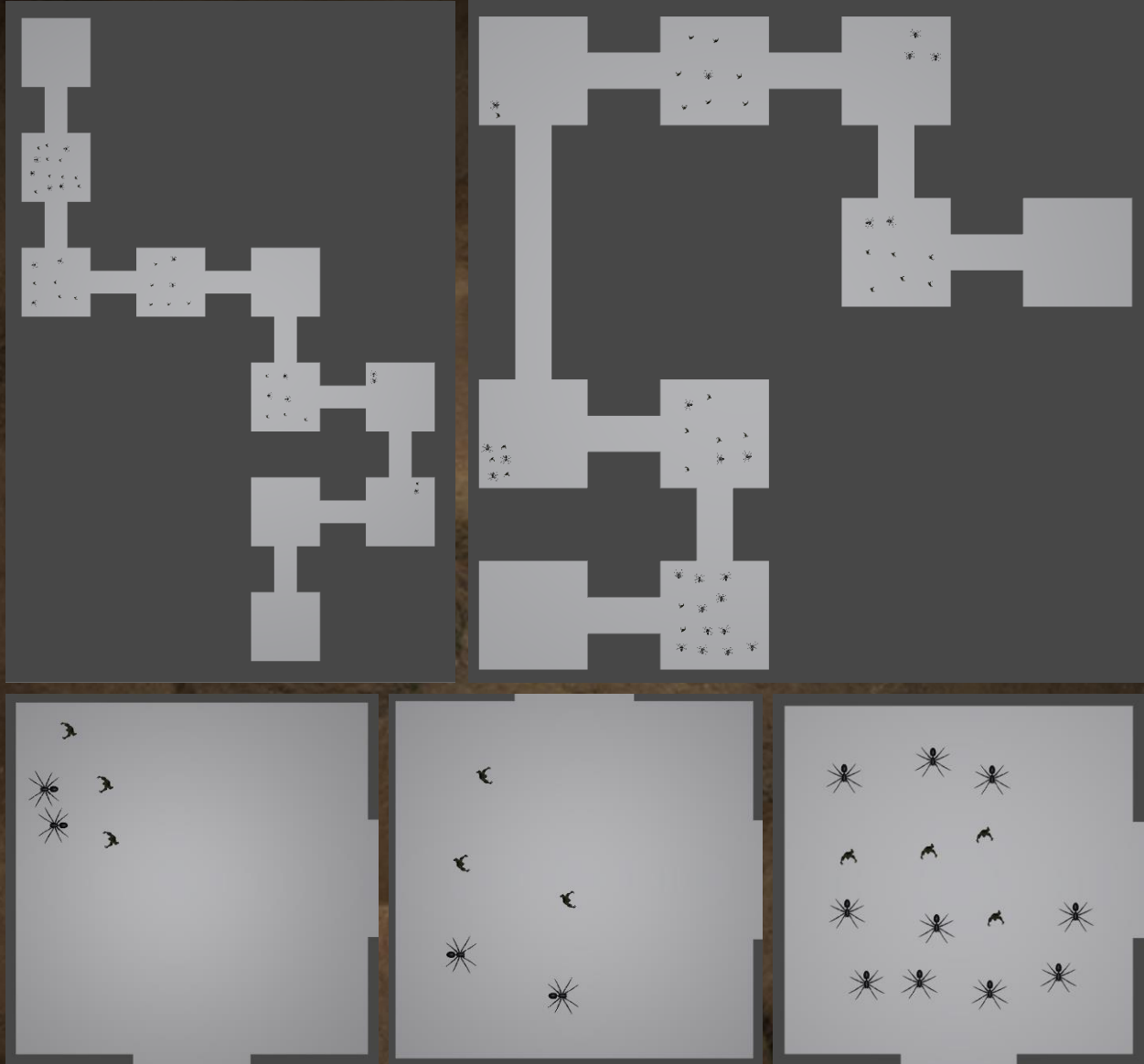
Game UI

The status, level and skills of every player is displayed in the corner of the screen where his character appeared in the [Start Menu](#).



3.1.3 Level Generation

The Level Generator works in several phases. First it calculates the path through the grid then according to the intersection of the grid the right island templates are chosen. The base of the island is extended with spawn areas for enemies, trap and loot. Each spawn type has three sizes: large, medium, small. Depending to the size more, stronger or better objects are spawned.



3.2 LOW TARGET

3.2.1 Models

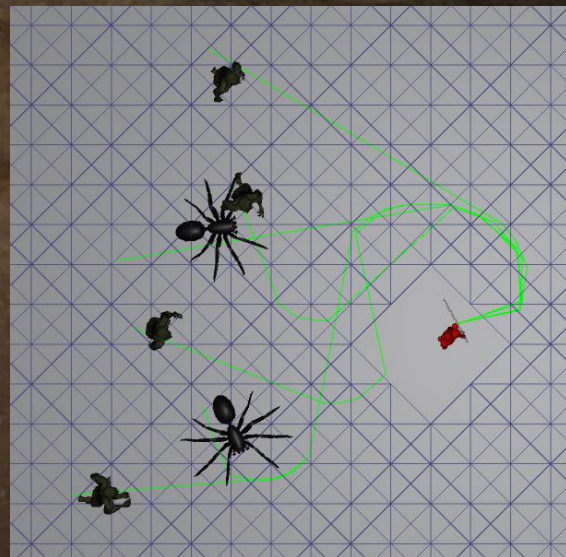
The greatest challenge during the whole project is to create all the 3D models with materials and textures. Whether if they are static or dynamic with additional bones and animations.

According to the definition of Interim everything art related can be quite ugly. This holds for our project as well. We try to converge to a quite acceptable visual appearance but since we're all engineers there won't be any current state of the art visuals.



3.2.2 Artificial Intelligent

The enemies attack the player on first sight navigating on a grid using the A*-algorithm. In the beginning the enemies blocked each other's way while trying to reach the player. After adjustments like marking the cell the mob stands on as blocked evolved the algorithm such that the enemies circle the player.



3.2.3 Balancing

The basic balancing is done by just binding the level progression to the current stage.

The level and strength of the enemies is linearly increased with the value of current stage as factor.

The Players attributes are increased after 1000 points which are currently updated with the enemy's base health points after defeating him.

3.2.4 Stats / Items → Stats / Skills

In the current state only the four skills presented in the Physical Prototype are included in the game mechanics:

1. Invincible
2. Damage Multiplier
3. Speed Multiplier
4. Health Regeneration

The integration of items got postponed since the required models are not done yet.



3.3 DESIGN REVISIONS AND CHALLENGES

All ideas so far are incorporated into the game. No large changes were made only tweaks. The biggest challenge is to get all the impulses from the brain into the game in an acceptable manner in time.

4 ALPHA

4.1 FUNCTIONAL MINIMUM

4.1.1 User Interface

The Graphical User Interfaces of the game were extended by an actual Main Menu and the Action HUD during the gameplay were revised.

Main Menu

The new Main Menu has moving buttons and display the important actions a player can take.

When a player selects 'New Game' the screen fades to the 'Player Join'-screen formally known as 'Start Menu'



Action HUD

The desired Action HUD now has a nice background for better determination between GUI and 3D graphics and has a Level Indicator

The skills are ordered such that first skill is always near to the Level Indicator. For player #2 and #4 this might be confusing and will probably be changed in the future.

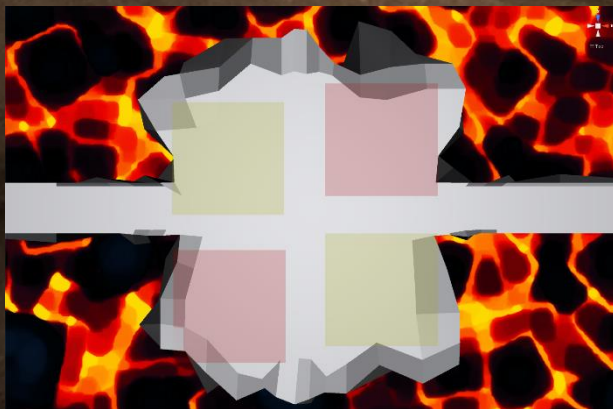


4.1.2 Level Generation

The variety of type that spawn got increased to match the full feature of Enemies, Traps, Loot and Decoration.

In the coloring of the spawn areas is as follows:

- Enemies are **red**
- Traps are **magenta**
- Loots are **yellow**
- Decorations are **green**



4.2 LOW TARGET

4.2.1 Models

Player

The best candidate for the alpha player character got chosen.

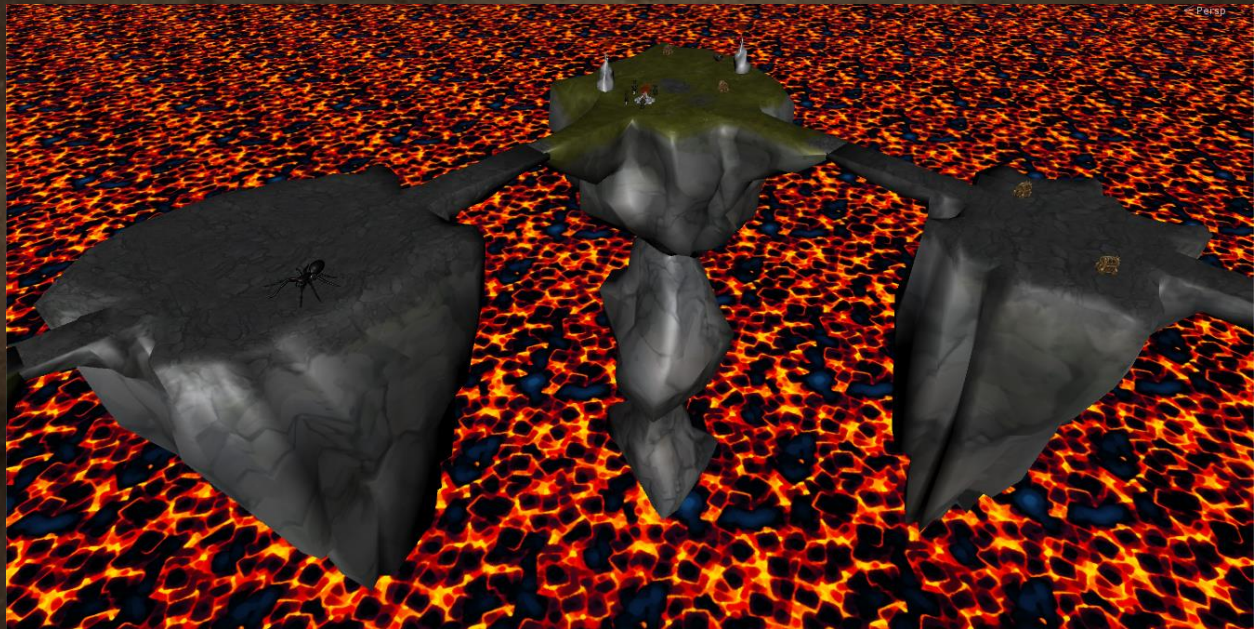
The model contains custom animations for the actions which are required in the game like several attacks and running.

The next step is to texture the model with suiting materials and textures.



Islands

The alpha models of the islands got also introduced with basic textures. At the moment there are only three types: Two types for the straight island and one for the corner island.



Decoration

The Decorations got a lot of additions:







4.2.2 Balancing

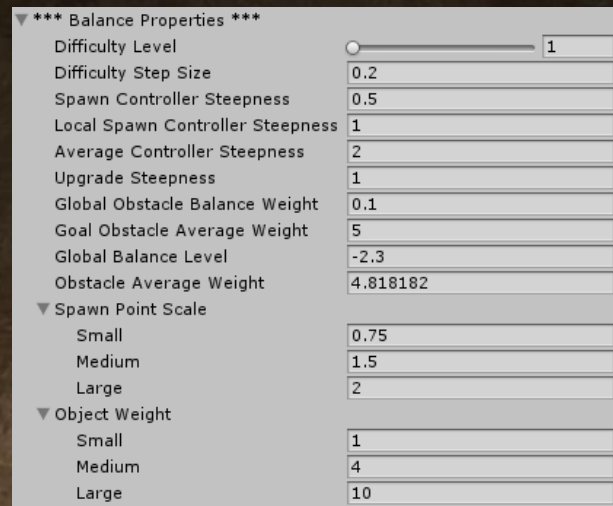
The more advanced balancing is done by a forward convergence approach.

The difficulty value is determined by a basic constant that is scaled linearly.

The balance is given by spawn areas (see [Level Generation](#)) with certain weights which in the end should add up to a global 0. Since the spawning is done with probabilities its very likely that the result is not 0.

The local result of each island is carried on to the next and the spawn probabilities are adjusted trying to reach the optimal global 0.

The adjustment speed of the graph is given by a custom steepness value which can be tweaked.



*** Balance Properties ***	
Difficulty Level	1
Difficulty Step Size	0.2
Spawn Controller Steepness	0.5
Local Spawn Controller Steepness	1
Average Controller Steepness	2
Upgrade Steepness	1
Global Obstacle Balance Weight	0.1
Goal Obstacle Average Weight	5
Global Balance Level	-2.3
Obstacle Average Weight	4.818182
▼ Spawn Point Scale	
Small	0.75
Medium	1.5
Large	2
▼ Object Weight	
Small	1
Medium	4
Large	10

4.2.3 Skills

The skill got also revised.

Invincibility

The invincibility skill was too simple and did not add anything interesting to the gameplay. Therefore, it got replaced by an [invisibility](#) skill.

The clue with the invisibility skill is that the human player can also only hardly see his character and thus might run off the edge.

Damage Boost

The damage boost ability suffered from the same problems as the invincibility: Too simple.

The new skill is called [shockwave](#) and applies an outgoing force to all units within a certain radius even affecting other players.

This helps a player if he is surrounded by a lot of monsters but also might kick his friends off the island.

4.3 DESIGN REVISIONS AND CHALLENGES

Creating the models, textures and animations took a lot longer than expected. The pathfinding also needs to be tweaked.

The realization of the test results which will be in next week will be interesting as well.

5 PLAYTESTING

5.1 SETUP

The supervised testing took place in the GameLab near the Chair for Computer Aided Medical Procedures & Augmented Reality.

The test candidate came from our personal surroundings (so friends and families). Even though the advertisement where made public on Facebook. The test time arrangement was done through a team calendar.

A testing session included a short introduction, several minutes of multiplayer testing and time for answering the survey.

The survey contained general Questions about the game regarding the play-behavior of the tester, User Interface, Gameplay and Game mechanics. An approach to incorporate the Play Matrix failed partially due to the capabilities of Google Forms.

5.2 RESULTS

Overall 18 testers took part with different weekly play behavior and genres.

The most significant genres where shooter and RPGs and the most used platform where Windows PCs.

Most of the tester categorized the game as a Hack 'n' Slay while having the chance to choose between Roguelike, Action-Adventure and Hack 'n' Slay.

5.2.1 Controls

All testers were provided with a Controller.

While the general controls for moving and attacking seemed to be quite easy to understand the skill which were located on the DPad confused some of the testers and sometimes where even forgotten. Also the binding which skill is in what direction on the DPad had to be actively learned by the tester.

5.2.2 User Interface

The amount of information displayed was sensed as enough but not too much. The chosen visualization on the other hand left some testers unsatisfied.

The additional comments we collected on this topic will help us to improve the visualization like 'which skill is active' or the existing cooldown timers. Further on did the testers remarked that it would be nice to have the key bindings of the skill directly near the skill.

A better highlighting of the players and enemies was also request by a few.

5.2.3 Gameplay

Even though the game felt too easy and the experience varied only a little the game was rated overall as fun. Which was the goal from the beginning.

The length of a stages was graded most of the time as 'just right'.

5.2.4 Level generation

We gave the tester the chance to tell which game element should appear more often and the result was that everything could be boosted up especial enemies. This also could be found in the question if island feel unique or just like every other. The islands seemed very similar.

The size off the island was sensed mostly fitting for the game only a few hadn't enough space.

5.2.5 Skills

The most popular skill used by the tester was the Shockwave Skill follow by the Health regeneration.

The Indivisibility was most of the time avoided since the character nearly vanished leaving the tester clueless where the character is. This lead a lot of times to the player falling of the island.

5.2.6 Additional

In additional comments the testers wished for:

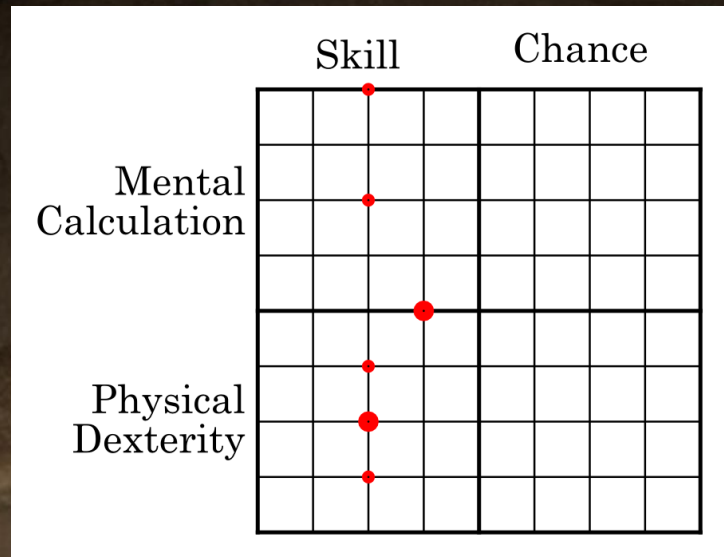
- More enemies
- Different Classes and Equipment
- The ability to jump
- A better highlight of the player character
- Faster combat like a faster main attack
- Instead of killing the player when falling off of an island only deal high damage to the player

5.2.7 Play Matrix

The play matrix couldn't be evaluated right because the give tools by our survey site limited us to radio buttons.

Only 8 of the 15 testers got the idea of the play matrix hence are this results not representative.

The filtered results, never the less, lead in a similar direction of what we think.



5.3 FUTURE CHANGES

Planned changes included

- Broader bridges so that the players don't fall of the easy
- A better highlighting of the player character and active skills
- More and stronger enemies
- More interesting placement of traps
- Faster and more direct combat
- More effects/animations and hints regarding the player status
- Remapping of controller keys regarding the skills
- GUI polishing and extension also regarding the skills

6 CONCLUSION

6.1 ADDITIONS

Most significant to the player are the additions in the fields Models, Prefabs, Textures and Materials. Also the Highscore Screen at the end of the game is an important part of the game. Small additions include an Active-Skill-Aura near the player and a level-up effect.

6.1.1 Models and Prefabs

Models are in most developments one of the last steps that complete the game since they need a working implementation to base on.

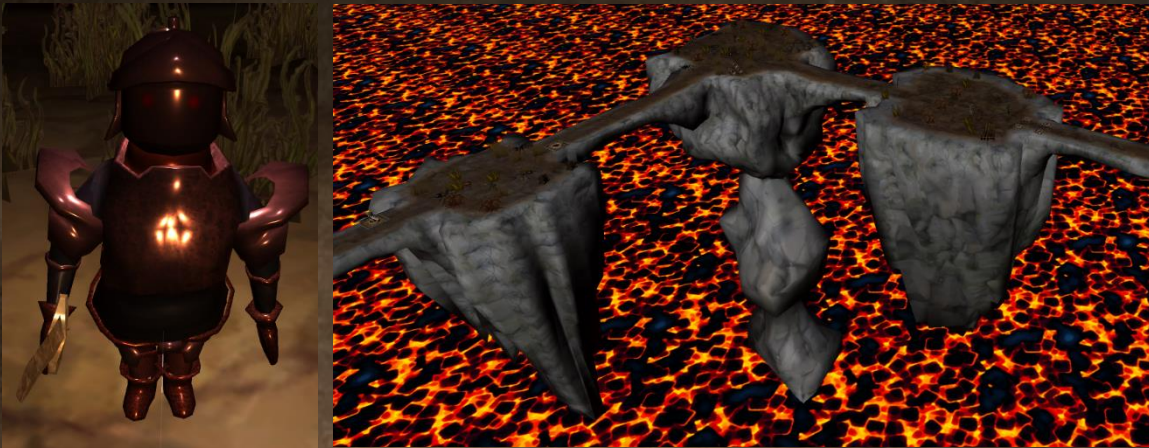
In this iteration 23 Prefabs were created from 21 different models. The prefabs are spawned on the islands to populate the empty boring area around the enemies and traps.



6.1.2 Textures and Materials

Besides the models textures and material create together with the lighting the immersive atmosphere that makes the game remarkable.

A highlight was the player texture which is constantly visible to the player. The islands had two texture revisions. The second emphasized the edge of the island more such that players don't fall off that often.



6.1.3 Highscore Screen

The Highscore Screen is displayed at the end of the game when all players have died. The highscore is separated based on the player count from the start of the game.



6.1.4 Miscellaneous

A good request of a few testers were that they would like to have an indicator for the skills that have an active duration time. A level-up effect has also been added.



Auras indicating that Healing (green) and Speed Boost (red) are active.



Level-up Effect

6.2 POLISHING

6.2.1 User Interface

Since this game is meant to be played with a controller button indicators and button mappings are displayed throughout the game.

Main Menu

The main menu got a few tweaks like greying out disabled buttons and adding an icon of the confirm button.



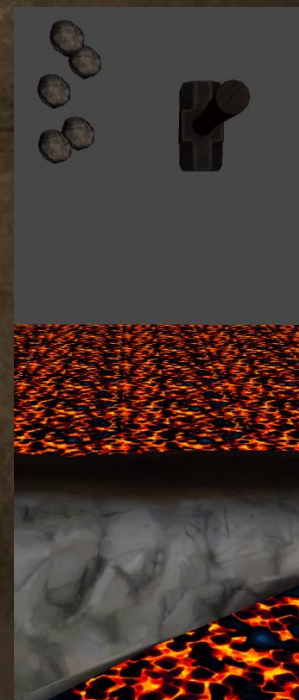
Key bindings

The key binding overview is displayed before the players can join the game. This gives the players the chance to get familiar with the controls as early as possible.



6.2.2 Traps

To mix up the variety traps are now placed in certain arrangements with different activation times and activation patterns.



6.2.3 Skills

We got several comments regarding the skills during the test phase. The invisibility skill was mostly disliked while the healing skill was exploited since there was not pressure on the player to proceed to the next stage.

Healing

To counteract the case of waiting and healing the skill now only heals if it is active and you hit an enemy. The player also does not get a fixed amount of health back but the actual damage which is dealt.

Shockwave

The Shockwave skill was a bit too powerful and knocked most of the time everything off the island. So the initial force got turned down a bit. But to keep the energy of the skill, it now deals damage to the enemies.

A visual effect has been added for a better understanding of what's going on.

Freeze

Since Invisibility was not working out for the players the Freeze skill got introduced. This skill slows down everything within its area of effect. The area of effect is a cone with an opening angle of 45° originating at the player's center opening outwards. The time of effect on a target depends on its size.



Shockwave Effect



Freeze Effect

6.2.4 Balancing

Most of the testers perceived the game as too easy therefore we increased the damage output of the monsters and traps and adjusted the balancing of the Level-Generator that the global balance level is always slightly negative. This means that there are more enemies and traps that loot.

6.3 SUMMARY

Most of the set goals were reached.

Functional Minimum				Low Target					Desired Target			
Unit Mechanics	Menu	Level Generation	Hot Seat	Models	AI	Difficulty Scaling	Stats / Items	Sounds	Animations	Puzzles Mechanics	Skills	SFX
█	█	█	█	█								
	█			█	█	█	█	█	█			
		█		█						█		
				█							█	█
				█								
✓	✓	✓	✓	✓	✓	✓	✓/✗	✓/✗	✓	✗	✓	✗

The only gameplay modifying goals ‘Item as loot’ and actual puzzles mechanics have been missed. Other component as sound effects and more visual effects are just secondary goals which would not change the game in itself.

The idea might have been a little too big for a semester with a varying time schedule. Especially the art and sound tasks lacked of professional personal. But the core game is there and creates enjoyment. Therefore, the main goal of the game is reached.

6.4 PROJECT COMMENTARY

Since the idea was very clear from the beginning on the actual implementation started very early. This was also necessary for the estimated amount of work to do.

The Physical Prototype didn’t improve or disprove any of the concepts. Prototyping with Unity is very fast and efficient and the initial implementations could also be used for further development of the game.

The most needed resources throughout the project were specialized teammates. Specialized in 3D modeling, texturing, animating and sound design. So everything else of a game that was not programming.

