

Game prototype

1. Introduction

The core gameplay mechanic of the game rests on the idea of careful exploration of a pitch black environment. The only means to navigate on the map is to make use of flashlights attached to drones and other scarce light sources spread across the environment. Expectedly, recreating the experience of uncertainty and having reliable information only about the immediate surroundings proved to be challenging when transferring the game into physical prototype.

Moreover, certain limitations on the exact implementation of recreated features had to be imposed on the account of the nature of the given medium and making the task feasible in the given time frame. However, the core gameplay mechanic of the prototype, as well as all of the conceptions to be used in the final game give a very good representation of how the game supposed to feel like:

- Operating in a pitch black environment
- Food collection
- Environmental dangers
- Fighting system
- Improvement of drone's various systems (weapons, shields and speed)

Game prototype chapter describes and shows the nature of the paper prototype, the set of rules to play the prototype, and finally, the experience and insights the team gained during the creation and testing of the prototype.

2. Paper prototype

The prototype consists of 3 separate boards: 1 for each of the two players, and one for the gamemaster, who represents the computer (Figure 1). The separation in three different boards is necessary in order to recreate the process of navigating in a pitch black environment. Each player's field of view is limited by a small 7 by 7 square area around him (Figure 2). Additionally, the player can see only a piece of the area that has some light shed upon it. Player's flashlight is represented by a yellow surface in front of him (Figure 2). The flashlight can be turned on and off at will.

Consequently, each player should not be aware of his opponent's position unless he is in his field of view in the presence of a light source. Furthermore, players must face away from each other (like in the Figure 1) to prevent cheating. Therefore, there must be a mechanism that will notify players of the immediate surroundings and potential threats, provided the player is capable of seeing them using the flashlight.

In our case, such mechanism is realized by the gamemaster who has the full view of the map and synchronizes the positions of two players.



Figure 1. Game setup

To illustrate the difference of the boards, compare figures 2, 3 and 4. Figure 2 and 3 give an example of player's perception of the surroundings, whereas figure 4 shows the board that belongs to the gamemaster. It can be seen that this board contains considerably more details and represents the complete state of the map, as well as the player's current positions, which correspond to the positions given on the player boards.

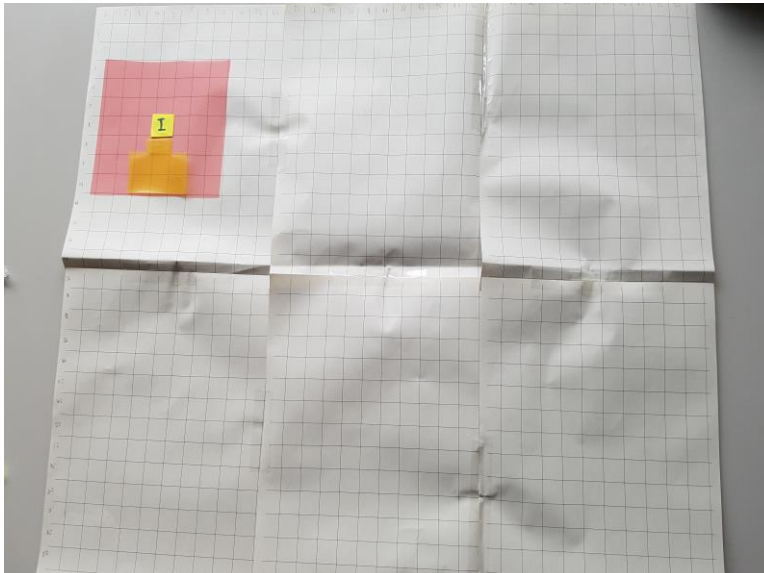


Figure 2. Player 1 board

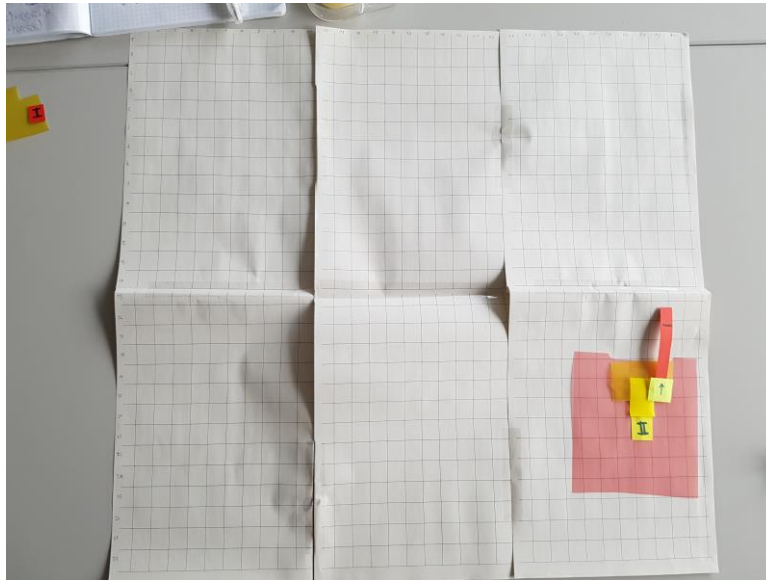


Figure 3. Player 2 board

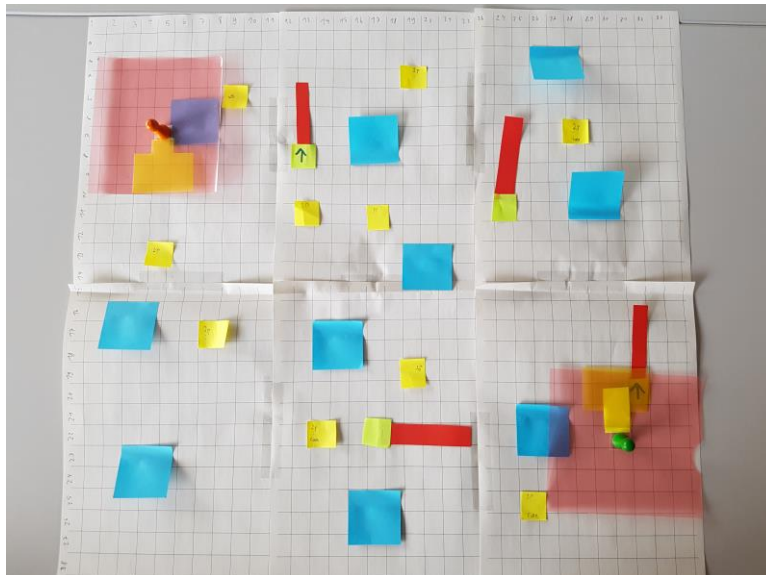


Figure 4. Gamemaster board

3. Rules and setup

Setup

The finalized board itself is a 22 by 22 grid. Players starting positions are located on the opposite corners alongside the diagonal. Below is the list of objects that can be placed on the map:

- Player
 - Drone

An orange and a yellow pawn

- Drone's field of view
7 by 7 transparent red piece of plastic
- Drone's spotlight area
Transparent yellow piece of plastic
- Obstacles
 - Building
Blue 2 by 2 square piece of paper
 - Wall
Blue 1 by 2 rectangular piece of paper
- Turret
 - Turret body
Light-yellow 1 by 1 piece of paper
 - Detection beam
1 by 4 red piece of paper

- Food

Text written on food items indicates how many points the item yields, plus how many turns it takes to collect the food item.

- Basic food item
1 by 1 yellow piece of paper. Yields 1 food point
- Advanced food item (plant)
1 by 1 yellow piece of paper. Yields 2 food points. Takes 2 turns to collect the item
- Advanced food item (can)
1 by 1 yellow piece of paper. Yields 2 food points. Takes 2 turns to collect the item

The setup of the map is determined by the gamemaster. He is the one holding the responsibility of making the map balanced and ensuring that both players are placed into fair starting conditions.

Rules

At the beginning of the game each player and a gamemaster receives one dice. Two players throw a dice to determine which one of them gets the first turn. Below is a list of rules for drone controls, PvP and PvE mechanics:

- Player

- Basic controls

A drone can only move horizontally or vertically. The number of cells a player can cover is determined by the number of a single thrown dice (up to 6). Additionally, if there is an obstacle or any other encounter on the way of player's movement gamemaster notifies the moving player (or both, if it's an encounter) either preventing him from moving in a certain direction, or simply updating him on the surroundings he discovers

- Field of view

Player's field of view is represented by a 7 by 7 red transparent piece of plastic. Field of view gives the notion of how much potentially a player can observe at any given moment provided there is enough light in his field of view

- Flashlight

Player's flashlight is represented by a transparent yellow piece of plastic. Anything that falls within its area can be observed by a player. A player can turn on and off his flashlight at any time provided that it is his turn. Combined with the notion of the field of view that gives an opportunity to stalk an enemy drone and claim the first shot, or simply run away if the player does not want to engage in combat. For example, consider a situation shown on the Figure 5.

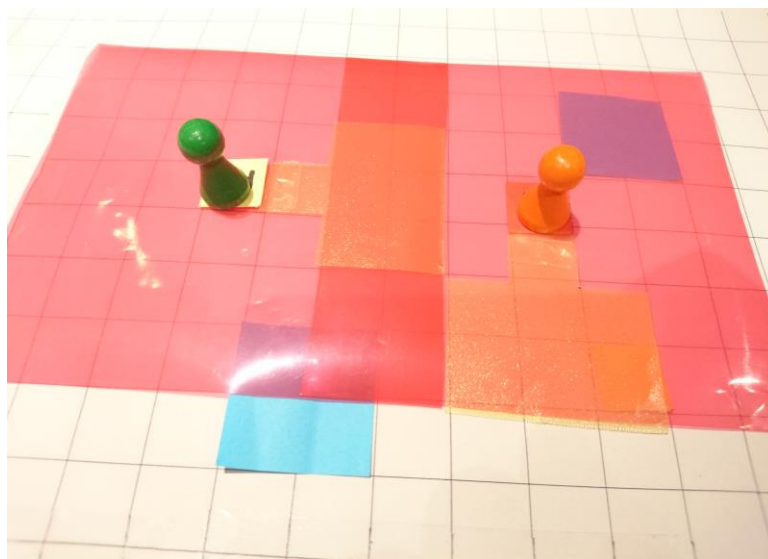


Figure 5. Hide and seek mechanic

Green drone is shedding some light in his opponent's field of view. However, his light does not reach the actual body of a drone, nor does it intersect with his enemy's spotlight, as the orange drone is facing away in another direction. However, the orange drone is capable of seeing some light shed on his field of view and he realizes that this must be an enemy drone. Consequently, the orange drone turns off his light in its turn and can flank his enemy (Figure 6).

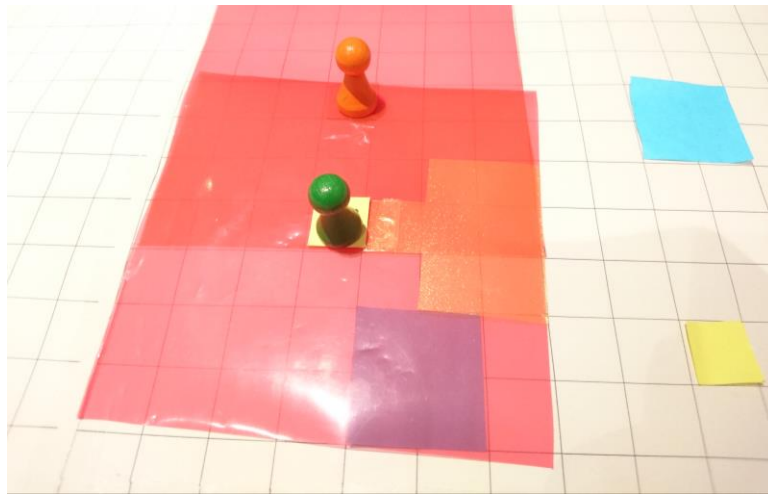


Figure 6. Green drone is flanked

- Food collection

In order to collect a piece of food a player must move his drone in the food item's cell. Subsequently, the player must spend as many turns in the cell as many food points the item is worth. Furthermore, a food item retains its state, i.e. if it is a plant or a can that both worth 2 points, the player can grow it or start opening it over the duration of 1 turn, leave and then come back to finish the job. Finally, if another player happens to stumble upon a piece of food that is already in the process of being grown or opened, then he can likewise finish the job and collect the food item for himself.

If the food item happens to be a can, then opening it will emit noise during the whole duration of collection. Emitting noise means that opponent will be notified of the player's presence if he enters an area of 9 by 9 square around the player's position (however, the exact position is not revealed).

Finally, the player must earn a certain number of food points in order to win the game. The number is determined by the players before the game starts. Each time a player collects a food item it gets stored in his drone. In order to obtain equivalent amount of points in exchange for the gathered number of food points the player must deposit all found food sources back at his base.

- Environment

In order to encourage players to make use of the flashlight we decided to introduce collision damage. That is, in the particular case of the paper prototype, should the player accidentally bump into an obstacle, he will lose 1 health point.

- Turrets

Capable of opposing players in his own way, gamemaster also takes turns in the game. Each time the gamemaster makes a turn he rotates each turret on the map counterclockwise. If the player happens to be caught in the way of rotating detection beam the fight commences. The fight follows standard set of rules accepted for a fight between two players, where the gamemaster represents an opposing player and controls the turret using his own dice. The turret has 2 health points and, if destroyed, reactivates after a certain number of turns one more time. Each shot fired by a turret deals 1 damage.

- Fighting system

Each player has 5 health points and can deal 1 damage point. Whenever two players are capable of seeing each other, such as when one player enters another player with his flashlight on from the frontal position (Figure 7), a decision round starts. The situation shown on Figure 7 actually depicts a three-way confrontation between both players and the gamemaster.

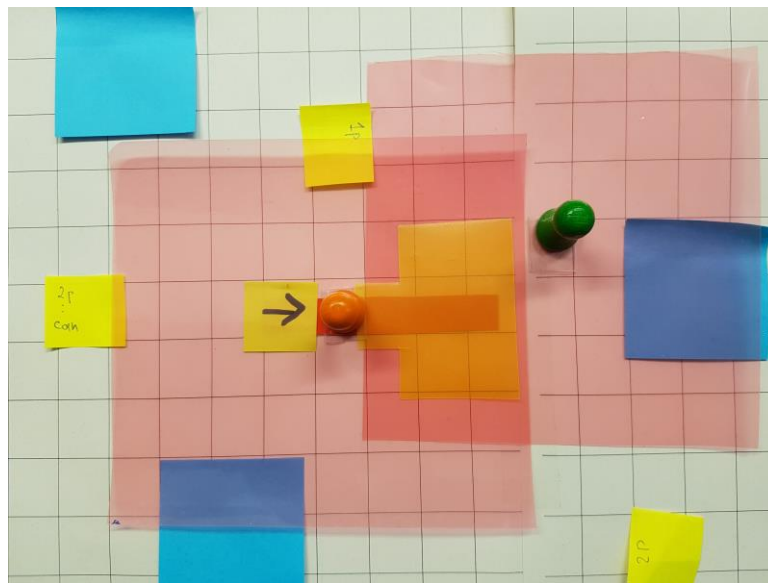


Figure 7. Confrontation between players

The fighting usually consists of consecutive decision and action rounds. In the decision round players throw dice to determine which player gets to make a first turn. The player who threw the higher number wins. If both players got the same number, they have to throw dice one more time. Subsequently, the winning player decides whether he wants to run or fight:

- Fight

Both players throw dice. Whichever player throws a higher number gets to shoot. If it's a draw both players shoot at each other.

- Run

Player throws a dice and follows standard set of rules defined for movement

An important mechanic that can change the interaction between players is the notion of boosts, that allows to deplete food supplies in exchange for a temporary improvement in one of the drone's systems.

If one of the players notices another (the enemy's flashlight intersects with the player's field of view) but remains unnoticed himself he can either avoid confrontation or claim the first shot. If the player decided to take the later course of action he reveals his position for one round even if his flashlight is off. Subsequently, during this round the fighting goes according to the aforementioned set of rules.

- Temporary boosts

Boosts can be applied before the action round and at any time when out of combat. In the latter case it only makes sense to use speed boost. In order to apply a boost to one of the systems both players write down one of the 4 options on a piece of paper and announce it. Options include:

- Shooting system: increase damage by 1
- Shield system: decrease incoming damage by 1
- Engine system: the player gets to throw 2 dice at the same time in order to increase travelling distance
- None: no boosts are applied to the drone

The option "none" is required in order not to reveal player's intention. Each boost takes 1 food point and wears off after the round is over.

4. Experience and insights

During the creation and playtesting of the prototype we realized we had to make amendments to certain game mechanics and add additional ones. Below is the list of changes we envision:

- We decided that there is not enough incentive for a player to use his flashlight. Therefore, we intend to have the player suffer certain amount of damage if he accidentally bumps into anything. Consequently, the player is forced to keep his flashlight on, which, on the other hand, puts him in the danger of being revealed.
- Food items retain their state. Any player, should he find a piece of food that is partially collected (grown or opened), can finish the job.

- Another gameplay element we believe might force the player be aware of surroundings and keep track of events throughout a game is reactivation of turrets. Once the turrets are destroyed, after a certain time period they are restored to their initial condition and pose a danger to players once again.
- We also decided to try out a gameplay element in the final product which we discovered while playing the paper prototype, but which does not actually appear in the prototype itself: let the players suffer damage when colliding with each other.

To conclude with, we realized the importance of balancing. For example, initially exploration part of the gameplay was exciting to test. However, we quickly deduced that the original size of the map was too large for players to engage in combat. Consequently, after a short while the gameplay felt unnaturally long and lacking content, i.e. encounters, PvE, food collection.

To alleviate this issue, we had to adjust the map size, number of points necessary to collect in order to win the game and certain mechanics pertaining to the paper prototype only. A major point was also to design a well-balanced map which provides a player with a reasonable number of events, and at the same time allows space for maneuvering and avoiding obstacles and other players.

Finally, having discovered that making small challenges to the paper prototype game mechanics can significantly affect how fun it is to play the game we realized that a very substantial part of turning the final product into a game that people are willing to play is about play-testing and balancing.