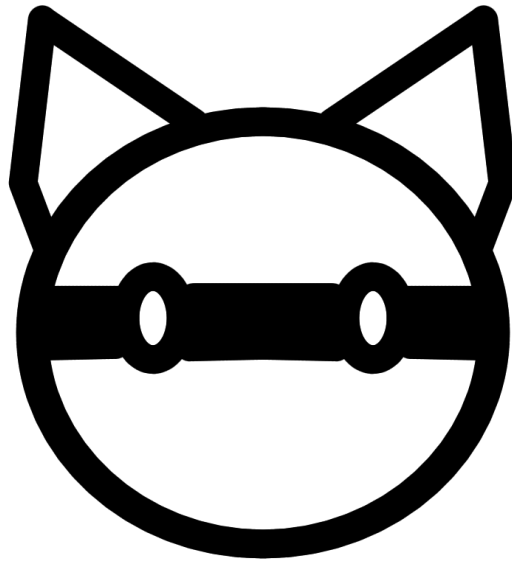


Prototype

DupliCat



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23.11.2022

Brush n' Rush

Clemens Fromm

Georg Eickelpasch

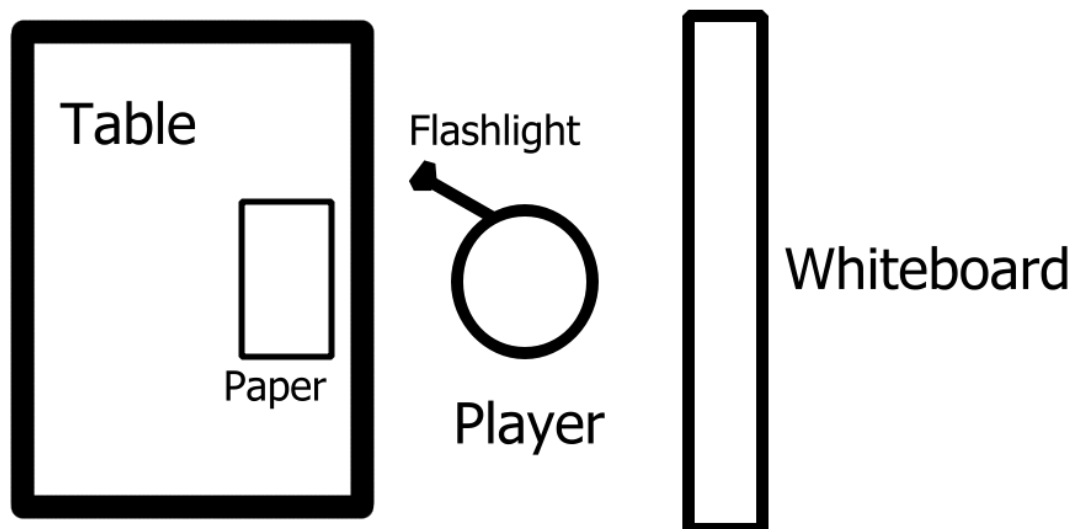
Kim Simon

Klejdi Sinollari

Leonard Keil

Prototype Description

For our paper prototype we had to alter the rules of our game a little bit. We have one actor who takes over the functionality of the computer and one actor who will be the player. The “computer” actor will first prepare a picture on a whiteboard which the “player” actor has to copy later. After the picture is prepared, the “player” actor can now enter the room, but in complete darkness, so that the “player” actor cannot yet see what he will have to draw. To start the game, the “player” actor will get a flashlight and the “computer” actor will start a timer (1 minute). The “player” actor can now start drawing with a pencil on a paper. He should copy the prepared picture on the whiteboard. The “player” actor can now use the flashlight to either see the whiteboard or to see what he is drawing on his paper. After the time runs out, the “player” actor must stop drawing. Now the “computer” actor turns on the light and has to evaluate the accuracy of the “player” actor. After each run we change some of the settings and see how the feel of the game changes. After the first run, the “computer” actor will also be a guard during the drawing phase. He announces that he will check for the player by loudly counting down from three. The “player” actor has to hide underneath a table or behind a shelf until the guard leaves again. After the second run we turned on the light, to see how important the flashlight and darkness settings are to our game.



For our prototype to function we had to create a layout to play in. After entering the room the “player” will be standing between a table and a whiteboard. The “player” can only face one of them at all times. The whiteboard displays the art piece and the table

has sheets of paper and pencils on it. The “player” is given a flashlight at the start of the game.

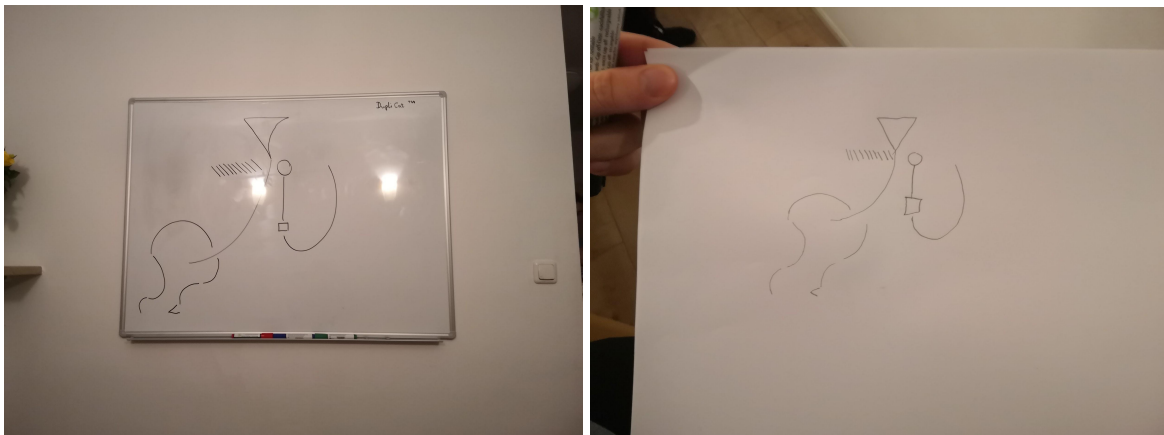
The baseline of our prototype thus includes these components:

- The player has a time limit.
- The player’s task is to draw as similar as possible.
- The player is in a dark room.
- The player has access to a flashlight.
- There are two actors, one player and one guard.
- The artwork is displayed on a whiteboard.
- The duplicate is drawn on paper.
- The player can only look at either the artwork or the duplicate.

Gameplay

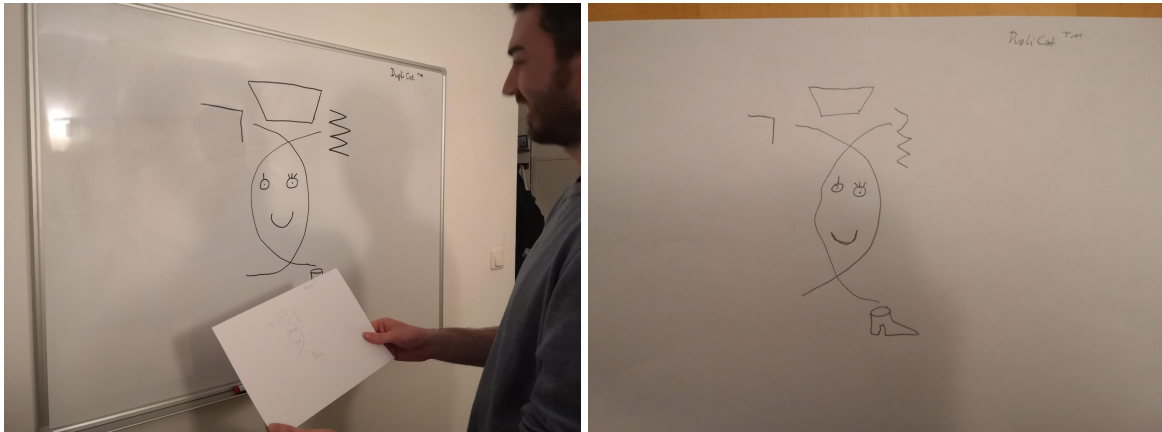
We split our prototype into multiple rounds to test out different interactions and parameters. Each round had the “player” entering the play zone according to our set out baseline. The following section will summarise each round with its changes. Each section also displays the original artwork on the left and the duplicate on the right.

Round One



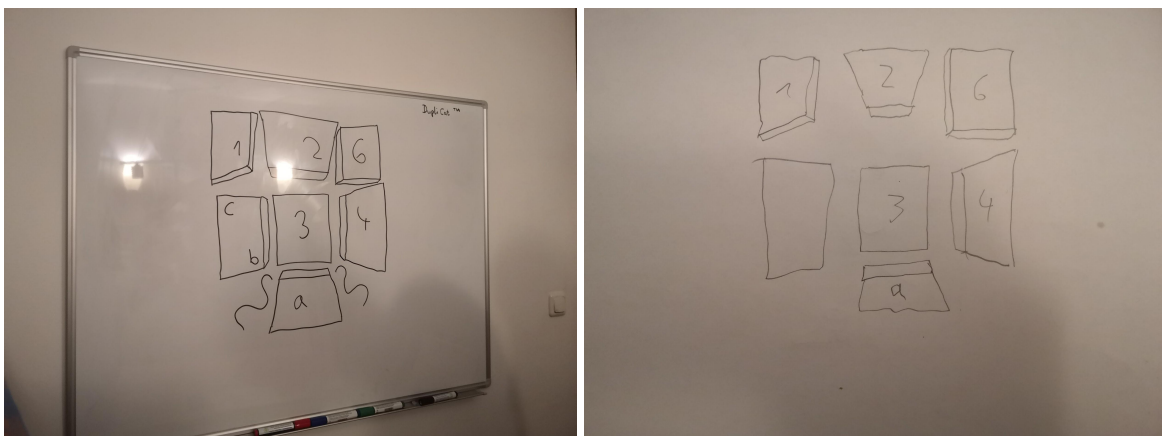
Round one simply followed the baseline that we had originally outlined. The player entered a dark room with a flashlight, placing himself between the table and the whiteboard. The player started a timer before looking at the artwork on the whiteboard for the first time. The player then turned around to draw on a sheet of paper. The player then repeated the process of looking between the two until the timer ran out. The resulting duplicate matched the overall artwork with some minor errors or inconsistencies.

Round Two



The second round built upon the first one, only adding a guard that would intermittently make themselves known by turning on a bright flashlight and loudly counting until entering the room. The player in this time must hide underneath the table and turn the flashlight off until the guard leaves after a short moment.

Round Three



Round three once again changed the rules by instead of drawing in a dark room the lights were turned on but the guard appeared more frequently. The player in this case was unable to finish the duplicate in time.

Results

The first important result that we acquired from our prototype is the design of the prepared pictures. It is difficult to balance the difficulty of multiple pictures, since each picture must be unique. We can use certain structures to influence the difficulty to a certain degree. E.g. a square has four lines, but a human can easily remember its shape by looking only one time on the original picture. Meanwhile four unconnected lines in non-90-degree angles are much harder to remember and the player must look multiple times to draw them. Also, curves are more difficult to draw exactly than straight lines and abstract pictures are more difficult than known objects or shapes.

The adjustment of the time in accordance with the picture is key to the player experience. If there is too much time, the player will finish and realise he should have drawn more accurately, but at the same time is not able to correct the drawing, so he will just feel bad. On the other hand, if the time is too short, the drawing is either very inaccurate or unfinished which leads to problems with the evaluation.

We perceived the guard mechanic as very entertaining, adding some physical activity and uncertainty to the game. Especially towards the end, when the player cannot know for sure if he can use all the remaining time or if he must plan some time to hide from a guard, it adds an interesting layer to the game. The darkness didn't really increase the difficulty of the game, since the player is always looking at only one thing to begin with. However, it really supports the theme of being a thief and makes the gameplay very atmospheric.

Feedback Evaluation

Thanks to the active participation of all our classmates, we got a lot of interesting feedback which we evaluated as a team and filtered for relevant feedback which we will incorporate and other feedback which tells us whether we are on the right path or not. Overall, we got the feeling that most classmates thought our project was feasible and an interesting approach. The points which are most interesting to us and which we will try to incorporate in future versions of the game are summarised here:

- Add levels with increasing difficulty
- Game challenges: rotating canvas, wrong colour space (this was probably the most interesting feedback for us, we will integrate it into our game)
- Having to change tools to draw in different textures. So, we can match using shape/position, colour, texture which adds another layer
- Don't get too repetitive on the shape drawing
- If drawing in the air is no fun, we can literally draw on a real wall in VR. We need to try this in early iterations of our game

What reviewers liked:

The overall consensus was that the background story we had initially created was a welcome addition that helps immerse the players in our virtual world. Furthermore, the cat themed puns in our story and in our game were well liked by the reviewers. This ensures us that we are going in the right direction and that the puns weren't too excessive. Given the special interest in the story, we will try to expand it further and better incorporate it in-game, so that every player is exposed to it, without needing to read external documentation.

Another well-liked aspect was the use of VR technologies. The uniqueness of our game idea combined with the VR mechanics seemed interesting to the reviewers. We weren't so sure if using VR instead of a 3D desktop-based world was the best choice, but given the excitement shown in the reviews, we feel more confident in our decision.

Some of the comments showed particular interest in the sculpting mechanic. Initially this was included just to add variety to the levels, but we will consider making it a more core aspect of our game, given the interest shown.

What reviewers showed concern about:

The main concerns revolved around the painting of the duplicate. Some were concerned with the difficulty of this mechanic. If it's too easy it will quickly become boring to the players, if you make it too hard it will become frustrating to play or downright impossible for some players that lack the precision of drawing in VR. We agree that special consideration must be shown to this mechanic, given that it's core to our gameplay. There are some approaches we have considered, such as using an art style that doesn't require too much precision to reconstruct. Additionally in the virtual environment the player has the opportunity to get closer to the canvas, so that they can more precisely reconstruct shapes. However we need to implement a prototype and playtest it to better understand how useful these solutions are.

Another concern about the drawing mechanic is that the player will be drawing in the air, without a hard surface to draw on. The drawing will be implemented using controllers which raycast onto the canvas, therefore the lack of haptic feedback from the surface is not as much of a concern.

There was also concern about the immersion breaking experience of being dropped in the gallery. We reconsidered that aspect and will add a cutscene that shows the break in. The cutscene will be observed from an external point of view, to avoid motion sickness.

Additional suggestions from reviewers:

Some of the suggestions were to focus more on the painting mechanic rather than on outside modifiers. While we agree that the painting is the core mechanic, the external pressure makes for a more engaging and exciting game, therefore we want to keep it as an important aspect of the game.

We also don't want to make the painting too easy by adding templates on how to paint, because that might put the player in autopilot mode, where their only concern is following the lines. We would like for a more engaging experience for our game, even if it makes it a bit harder to play.

To avoid player frustration, we will try to implement an algorithm that shows the player which parts of the painting were not similar enough to the original painting. This enables the player to better understand what they are doing wrong and to improve their drawing skills.

Adding different tools for finishing a painting is something we really like and already wanted to incorporate into the game. The tools might also be scattered around the room or hidden in different places, to make the experience more challenging. However this might take away too much from the painting mechanic, so it needs to be tested before deciding on it.

Having difficulty that scales with level is also something we will implement in the game, so that the player has the opportunity to start with an easy game and move on to harder levels as his painting skill and understanding of the game evolves. We also want to have slightly different external pressure on each level, so that the player doesn't get too used to the outside modifiers.