

Context Project: Human Pencils Product Planning

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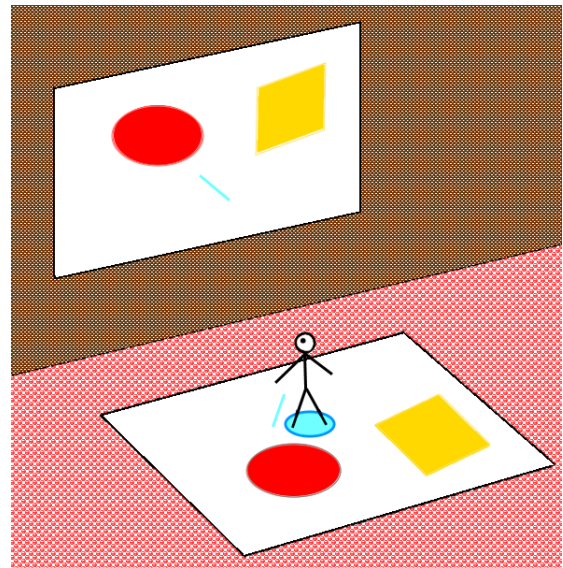
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Introduction

Our idea is to let multiple participants draw on a large projected canvas, where they themselves are functioning as pencils. They are able to freely roam the field, creating 'brush strokes' by hovering their hand above the floor and swiping along.

The strokes people leave behind will remain projected on the floor, which will also be shown on the wall. This second projection provides the players with a clear view on what they've created so far, indicating the painted colours and the players position on the canvas.



Our target audience mainly consists of people who have some spare time on the hands, since a painting may not be done in minutes. Consider people waiting at an airport, or even those who are in the TU Delft Aula building, waiting for a lecture. These people are not necessarily in a hurry, and thus suitable participants for our game.

Time and place are the main factors that will influence our audience, nonetheless, we want the game to be enjoyable for a large variety of players, regarding both age and personalities. Furthermore, no drawing or painting experience is required to join and play along, and there is no pressure to perform well.

As explained before, your arms will function as the brush, and movement allows you to wonder about the canvas. This introduces a whole new way of drawing, and in collaboration with others, it will give the player a unique experience.

In order to give a more detailed description of the game we are aiming for, this document contains a (high-level) product backlog, a roadmap and our definition of done.

The high-level product backlog presents the features of our game using the MoSCoW method. Next, we give a view on the development process. We show when we want to implement the features by using a roadmap, which contains a weekly description of our planned goals.

In the product backlog, we provide user stories to the requirements as stated in the high-level product backlog. Here we explain the features from a user's perspective, and elaborate the need of their presence.

Product

Human pencils will have several features. In this section we will explain what features we want to implement. The features are in our high-level product backlog. It contains features we will implement, but also features we want to implement which might not be possible in this development process. We will also provide our roadmap in which we show our sprint plans and when we want to implement which feature.

High-level Product Backlog

In our high-level product backlog we show the features we want in our product. Some features might not be plausible to implement as of now or are not a priority. In order to clearly define the product features that are crucial to our product, we categorize each one of them according to the MoSCoW method.

Must have:	These are the requirements that must be within the final product. Without them the product will not be able to function correctly.
Should have:	These requirements are still valuable and should be within the product. However, without them, the product would still be usable.
Could have:	These requirements will only be implemented if there is enough time left, as they will only add extra features to the product.
Won't have:	These are the requirements that probably will not be implemented, yet they can still be taken into consideration whenever the project will be continued later on.

Must Haves	
	Players are able to collaborate with each other.
	Players are able to freely roam the "canvas".
	Players are not restricted by a time limit. (Unless chosen otherwise.)
	Body movement allows the player to draw.
	Players have several colours they can use.
	Easy to join / leave of the game.
	The game is easy to play; minimal learning curve.
Should Haves	
	Players can blend colours when drawn on top of a previously coloured section.
	Eraser option to undo mistakes.
Could Haves	
	Players are able to increase / decrease the transparency of the colour they are drawing with by "pressuring the brush"; lowering their hand.
	Time restraint on certain game modes.
	Bonuses or debuffs can appear on the playing field, which will give the player(s) an advantage / disadvantage.
	Current players are given the task to invite another player to the field.
	In order to counter players sabotaging the game, we need an undo function over a predetermined time interval.
	People can submit their own drawings so other people can recreate them.
	We send / give players their creation after the game has ended.

Won't Haves

	People are able to paint a large surface together by pointing at each other and walking around.
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Roadmap

In this section we have displayed a roadmap for our game.

Sprint 1

- Deciding on a concept
- Defining game definitions
- Creating a Product Vision draft
- Creating an Emergent Architecture Design document

Sprint 2

- Creating a first demo of the game using keyboard input
- Starting with image processing
- Finishing the Product Vision
- Creating the Product Planning

Sprint 3

- Finishing Product Planning
- Starting colour blending
- Feature detection of foreground objects and background noise cancelling

Sprint 4

- Starting to create the basic infrastructure of the game
- Improving colour blending and graphics
- Starting to support multiple players

Sprint 5

- Initial input for SIG
- Improve game infrastructure

Sprint 6

- Starting with actual projections and camera
- Adjust / implement code to correctly work with projections and camera.

Sprint 7

- Having all features completed for the beta

Sprint 8

- Creating final report draft
- Finishing the Emergent Architecture Design document
- Final input for SIG
- 4 page draft for CHI PLAY paper
- Script for CHI PLAY video
- Bug fixing
- Final testing of the features of the game

Sprint 9

- Finishing final report
- CHI PLAY paper
- CHI PLAY video

Product Backlog

User Stories

In the following section the features are explained from a user perspective.

Must Haves

- **Players are able to collaborate with each other.**
As a player I want to paint with my friends/others, so we can cooperate in order to achieve a better painting.
- **Players are able to freely roam the “canvas”.**
As a player I want to be able to walk across the canvas without painting. This enables me to reposition myself without any trouble and reach certain spots easily.
- **Players are not restricted by a time limit.**
As a player I want to be able to take my time painting, without having the pressure of rushing and therefore not being able to fully express myself.
- **Body movement allows the player to draw.**
As a player I want to paint by using my body. This will take away the ordinary way of merely using arm movement and thus introducing me to something unique.
- **Players have several colours they can use.**
As a player I want more than one colour I can paint with, so that I'm able to create different coloured shapes.
- **Easy to join/leave the game.**
As a player I want to join/leave the game whenever I want. This way I do not have to wait and I am not required to stay against my will.
- **The game is easy to play; minimal learning curve.**
As a player I do not want to read/learn complex mechanics in order to play the game.

Should Haves

- **Players can blend colours when drawn on top of a previously coloured section.**
As a player I want to combine colours to create new ones. This helps to expand the variety of drawing options I have, so that I am less limited during the painting process.
- **Eraser option to undo mistakes.**
As a player I want to be able to undo my mistakes. This ensures that a single misstep does not ruin my painting and forces me to start all over again.

Could Haves

- **Players are able to increase/decrease the transparency of the colour they are drawing by “pressuring the brush” lowering their hand.**
As a player I want to increase the pressure on the brush by lowering my hand. This renders me to control the opacity of the colour I am painting with, which enables me to also focus on tints.

- **Time restraint on certain game modes.**

As a player I want to challenge myself by starting a timer, so that I have to complete the painting under pressure.

- **Bonuses or debuffs can appear on the playing field, which will give the player(s) an advantage/disadvantage**

As a player I want to gain an advantage by walking over a pickup. This helps me completing a painting faster when under time pressure.

- **Current players are given the task to invite another player to the field.**

As a player I want to increase the amount of players, that I have more people to collaborate and share ideas with.

- **In order to counter players sabotaging the game, we need an undo function over a predetermined time interval**

As a player I want to undo what a saboteur has done to my painting. This prevents me from having to start all over again.

- **People can submit their own drawings so other people can recreate them.**

As a player I want other players to be able to recreate my painting, so that I can challenge them, as well as bestowing others with a larger variety of pictures they can recreate. This way I can even contribute to the game itself.

- **We send/give players their creation after the game has ended.**

As a player I want to keep what I painted, so that my effort will not be in vain.

Won't Haves

- **People are able to paint a large surface together by pointing at each other and walking around.**

As a player I want to connect with another player by pointing. I want to paint a surface by using the space between us as a brush. This gives me another way of interacting with others, rather than just filling in a shape all by myself.

Definition of Done

We have shown our planning for the development process and the features we want in our product. But when is our product done? We will give our 'definition of done' for our features, our sprints and our product.

A feature will be done when all members of our group approve of the feature. As long as the test coverage of the product, with the new feature, is still at least 75%. All tests of the feature pass and it contains no errors. The feature also should be able to merge with the already existing system and not break other features.

A sprint will be done at the end of the week. At the end of the week we will reflect on the sprint. To say a user story/task is done depends on the task. If the task is to implement a feature, the above definition applies. When the task is a document, such as this one, every member of the group reads it, gives feedback and/or makes changes until everyone is satisfied. If the task is to research something, it is the member's own responsibility.

The product is done when it is fully tested. This means that not just the code is tested, but also the gameplay. By user testing the gameplay we know our game

meets the expectations and requirements as a playable game. All the must haves from our MoSCoW table have to be implemented. These are mandatory features for our product, without these the game will not be playable. We want the should haves from our MoSCoW table to be implemented as well. These features aren't mandatory and the game will be playable without them, but we find these features will improve the gameplay. The documentation and the code should be ordered and fulfil all the requirements.