

VERSO

A tool to help relieve the hassle of long stand by times at train stations, and create joy by providing an opportunity for passengers to connect over a game of **VERSO**.





Problem

A major pain point that we found all train users experience, is the **time spent at the station waiting** for their train to arrive. Passengers can be waiting from **15 minutes to over an hour** with little or nothing to do to help **pass the time**.

During our ethnographic research through interviews with train users we found that most people, especially the commuters, **took the majority of their train journeys by themselves**. This meant they were spending their time waiting on the platform **on their phone**, listening to music or reading. From our insights we saw that there was an opportunity improve this experience by creating **a catalyst to help connect passengers** and to mitigate this pain point in their train journey.

Process



Proposal

Our proposal is **VERSO**, a two-player game that can be played by people of **any age or ability** and serve as an **icebreaker to help connect passengers** by inviting someone to have a game. This not only helps pass the time but also **creates joy by bringing play into their daily routine**.



Social Impact

We designed Verso as a tool to create joy by helping people to connect who otherwise never would have. From our research it was clear that **strangers almost never strike up conversations just to have a chat**. This was especially true for **younger generation** who told us the only time they ever talked on the train was with people they knew or were travelling with.

Our research found some insights in to the potential reasons for this, with the main ones being the widespread use of people on their **phones/ wearing headphones to distract them** for the duration of the train journey.

We also conducted observational studies by taking train journeys at different times of the day and different station with high/low traffic and found that in every scenario the platforms were almost completely devoid of chatter or conversation, and from the atmosphere on the platform it was clear that nobody wanted to be there and wanted to get on their train and go as soon as possible.

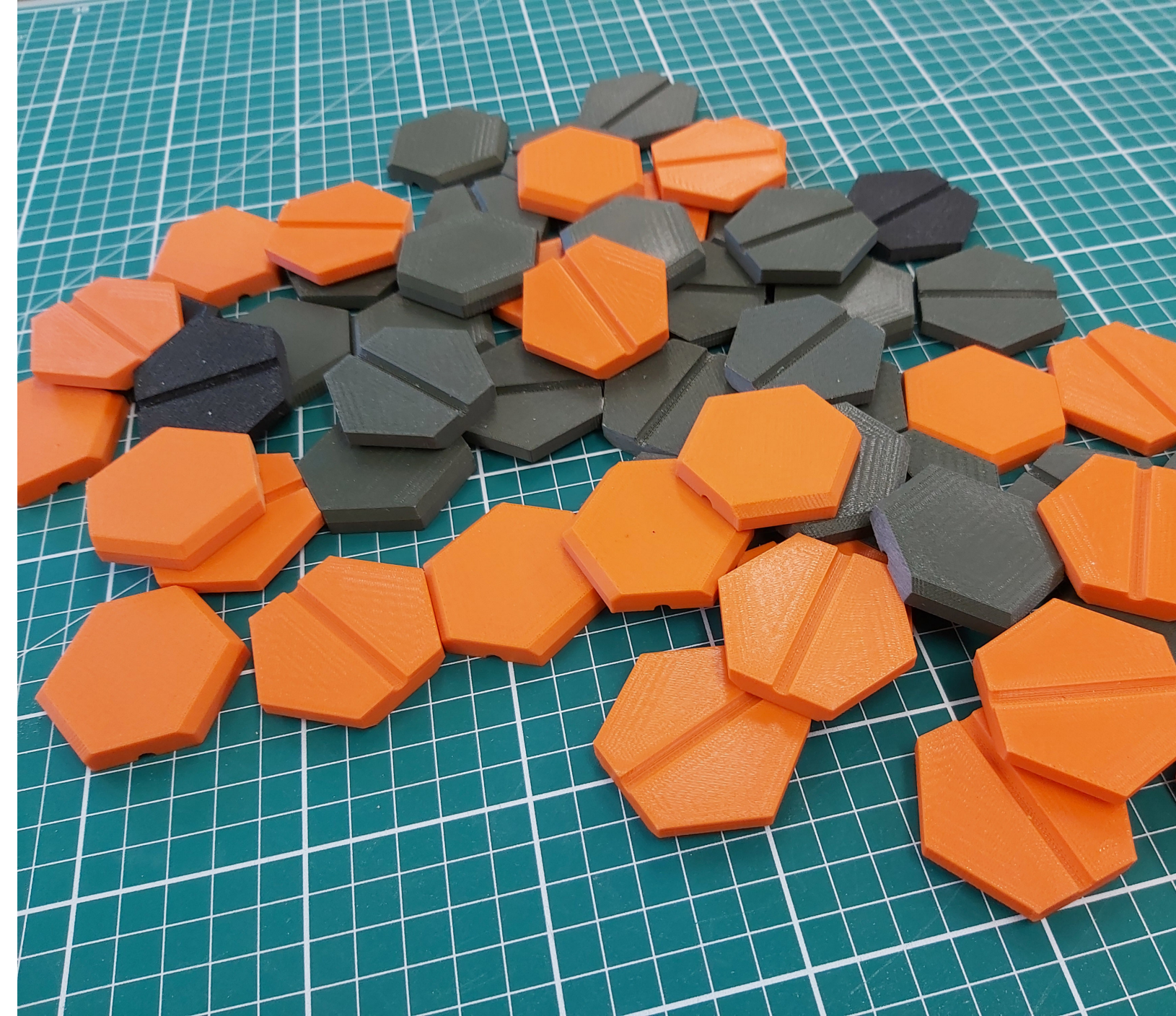


Enviromental Impact

The environmental impact of the product was one of the **key design factors** alongside cost, when deciding on the materials and manufacturing processes to produce the product. We made the choice to use **ABS**, as it is **long lasting** and **resistant to corrosion**, so the boards would have a long use life before having to be replaced. It is also easily worked, and compatible with **injection moulding**.

While plastics have a bad reputation in relation to the environment, using a polymer such as ABS for injection moulding is actually for **more energy efficient** than a **traditional materials** such as metal. The energy consumed in **heating the metal, forming it**, and then the **increased weight** of the component when it comes time to be **shipped** are all factors which make a **lightweight durable plastic** such as ABS the best choice.

The small amount of metal we have to use in the product for its **structural strength** is **aluminium**. We chose this metal for **low energy consumption** to produce and low weight. **Recycled aluminium** is also extremely plentiful and only requires **5% of the energy consumption to recover it** than to extract it and it can be recycled again and again without affecting its quality, this also means roughly **30% of the worlds current supply of aluminium is recycled**.



Our requirements for Accessibility

1) Equitable use: eg brail over colour. Avoid segregation, equal in safety and appeal for all users.

2) Flexibility in use: provide choice methods, facilitate users accuracy and precision, adaptability to users pace.

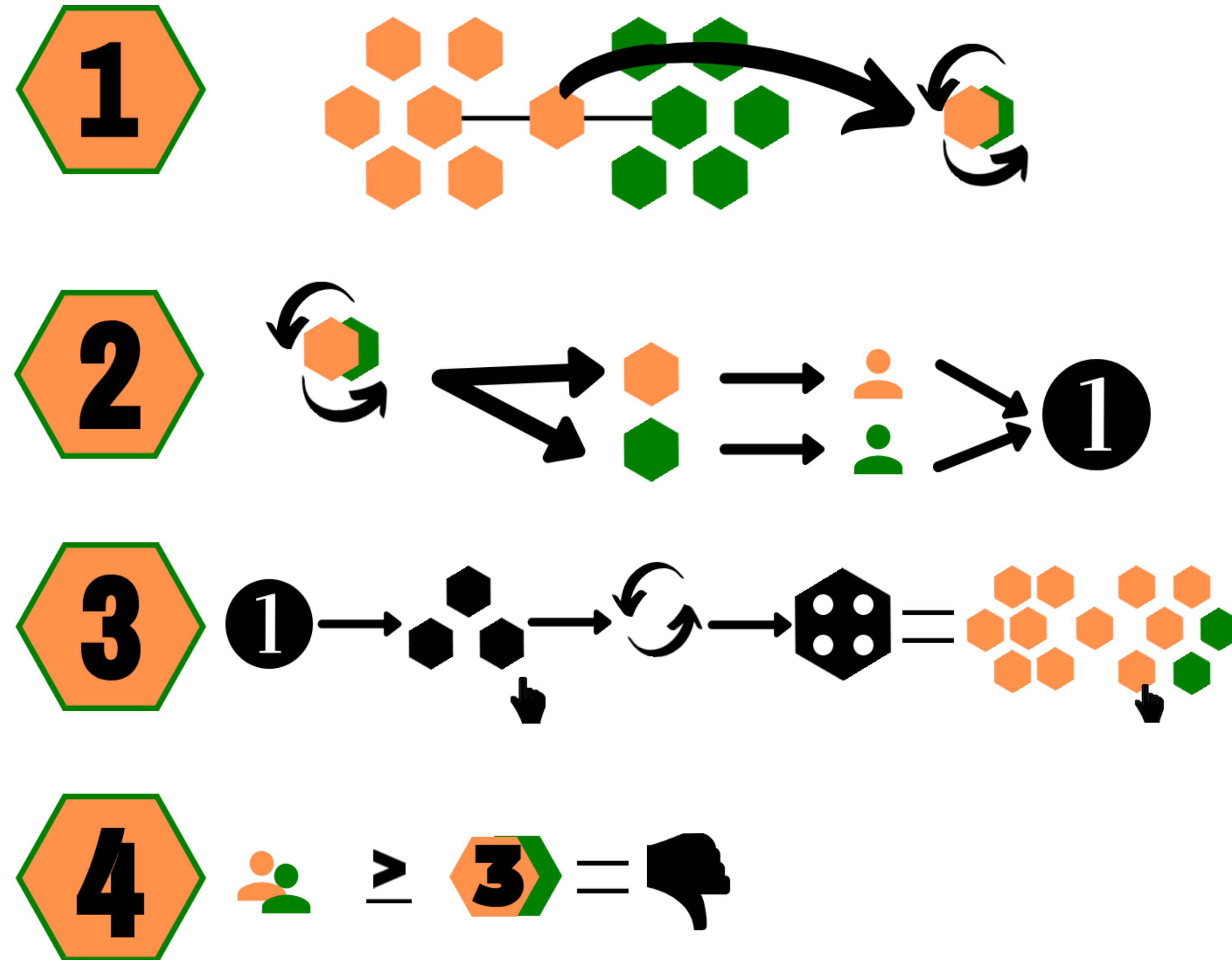
3) Simple and intuitive use: No unnecessary complexity, consistent with expectations, effective prompting and feedback.

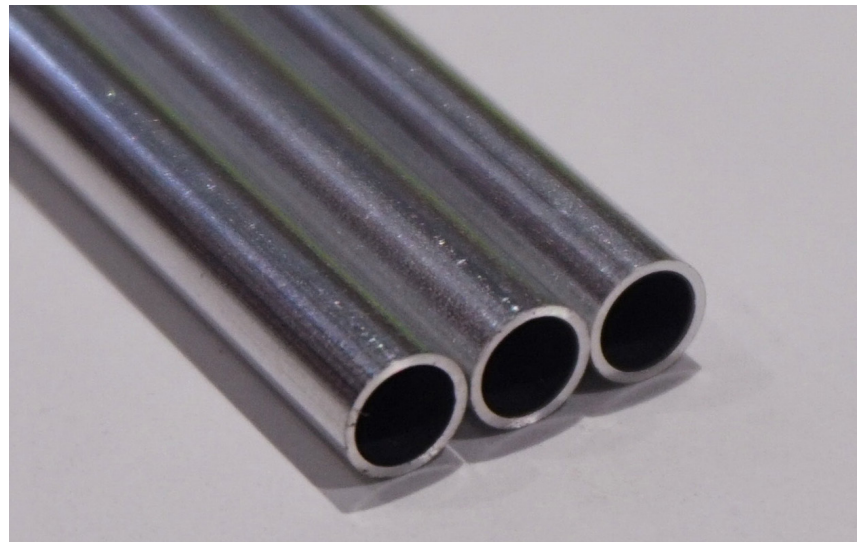
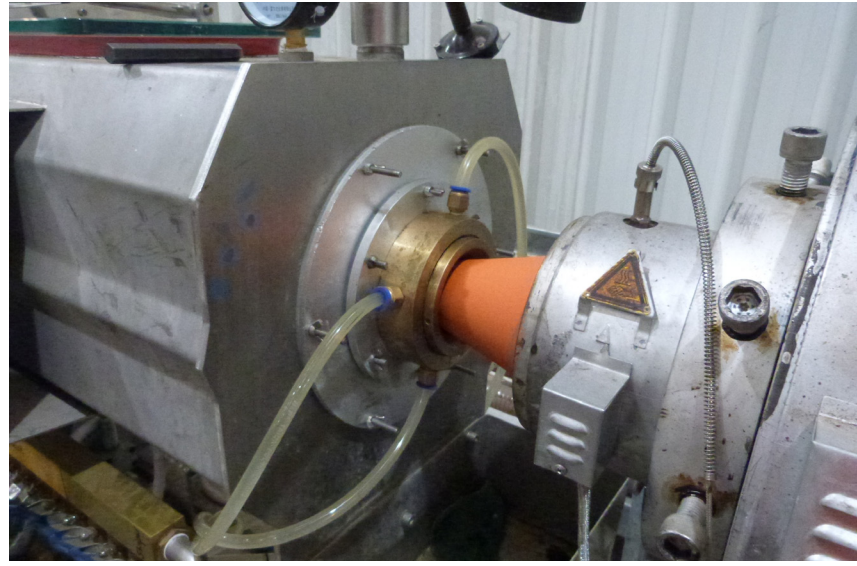
4) Perceptible Information: adequate contrast between essential info. Maximise “legibility”, compatibility for people with sensory limitations.

5) Tolerance for error: minimise hazards and errors, discourage unconscious actions, provide warning of hazards.

6) Low physical effort: allow a neutral body position, easy operating force, minimize repetitive actions.

7) Size and space for approach and use: Easy reach to all components, variations in hand and grip size, adequate space for use of assistive devices or personal assistance.





KEY PLASTICS

Materials

Our research brought us into weather resistant plastics which would also be environmentally friendly by being long lasting and have the potential to be recycled. The best choice for this was ABS plastic

We were able to source these recycled granulates as a raw material from “Xiamen Technology Ltd” in China at €1.70 per kilogram.

We also had to source the aluminium bars from “rsonline.ie” €29.19 for 5 metres of 4mm which was long enough for 5 boards our price per boards was €5.84 per board.

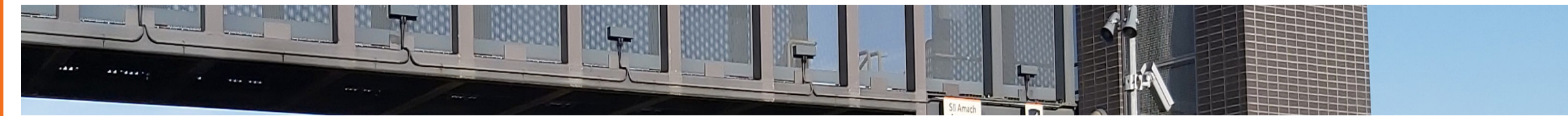
If we secured an order for 147 train stations in Ireland with 4 boards per station and each board is made of 48 parts this would come to 28,224 total individual parts. This scale of production would make injection moulding the best option.

Based on estimates from the injection moulding supplier “Keyplastics.ie” the initial tooling cost for this the boards would be €4,000 and including the cost of raw materials a 588 boards order would come to €9.86 per board.

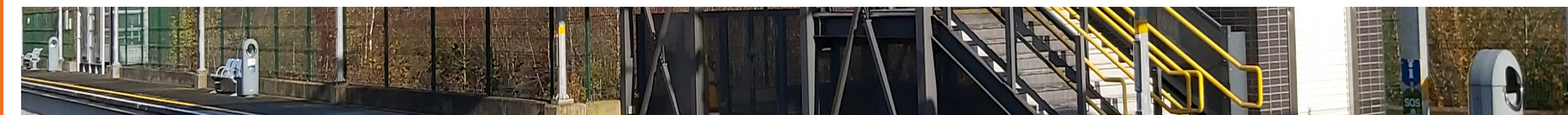
This combined with the aluminium tubes gave us a final price of €15.70 per board.

Business Model

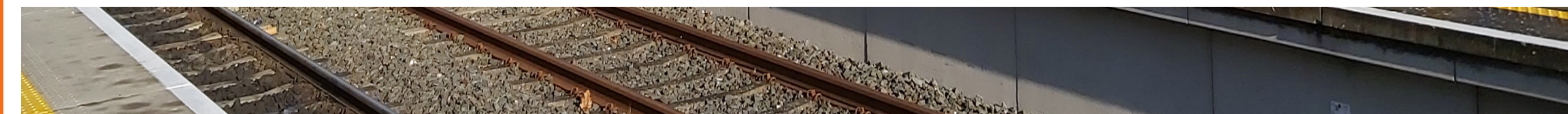
With the final cost for each individual board coming to €15.70, it was important to keep the price as low as possible as it is a free to play game and will not generate income from passengers using it. The price will also depend on the size of the board and where it is integrated, (shelter panel or seating table).



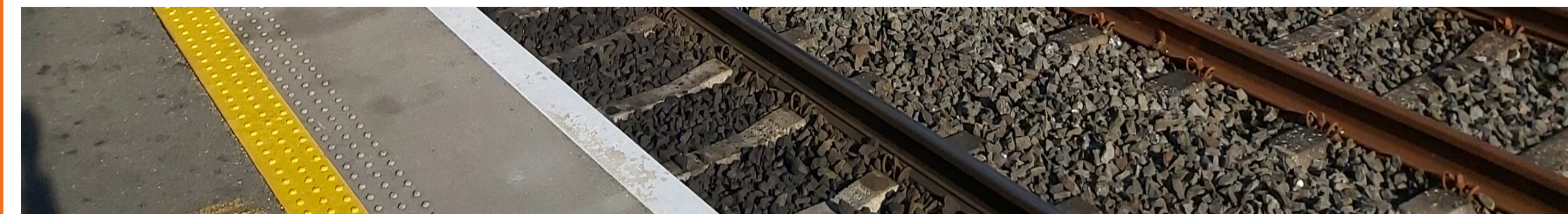
The product will be sold to Iarnród Éireann as a value adding feature for their platforms. And so, all the funding will have to come from orders from the company itself. We will have to try to get the largest initial order we can in order to drive down the final unit cost.



There is little to no competition in this space as there aren't any products on the market currently which solve this need to add joy to passengers' journeys at train station.



If the boards are able to saturate the train station market, there is the potential to transfer these design principals to other wait stations such as bus stops or airports.





Evan, (Student Commuter)



Matthew, (Leisure Use)



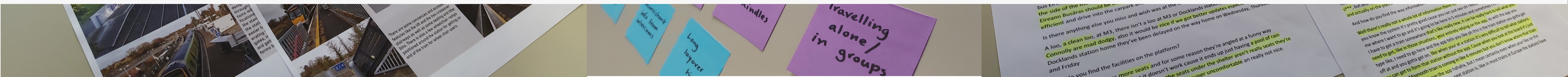
Veronica, (Commuter)



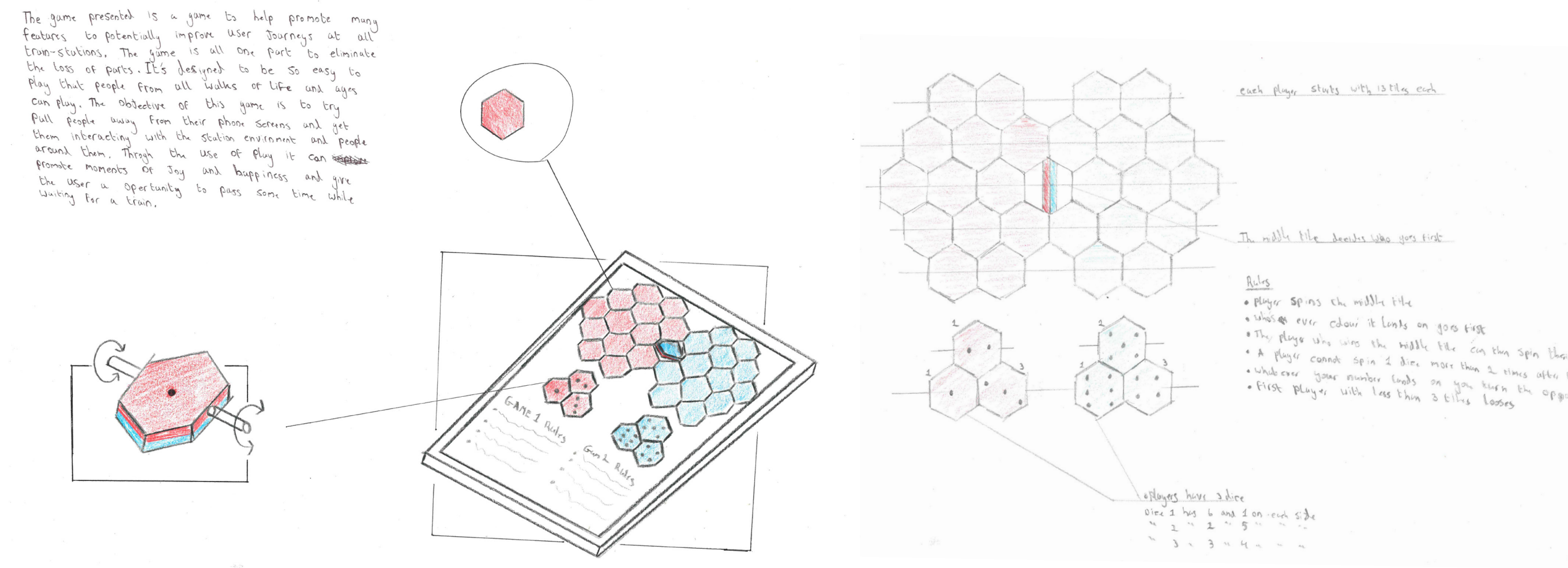
Image Boards Insights Transcriptions

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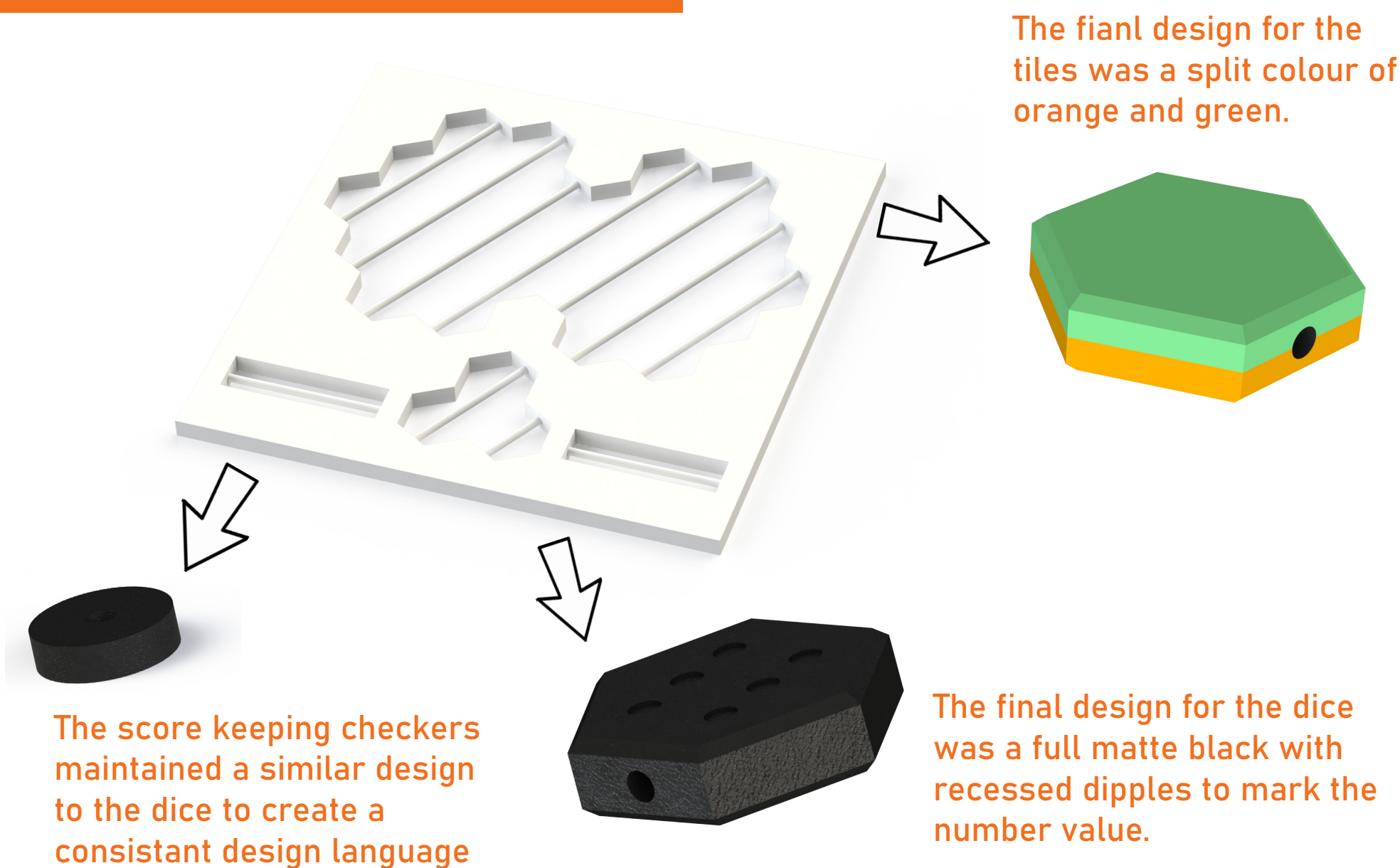


Sketching



After deciding to focus solely on the building the game board we had to figure out the basic mechanics of how the game would work. We decided on a territory-based game we each player would try to fill the board with their coloured tile. By spinning dice, the players would be allowed to turn over a certain number of tiles to try win the board.

Solidworks



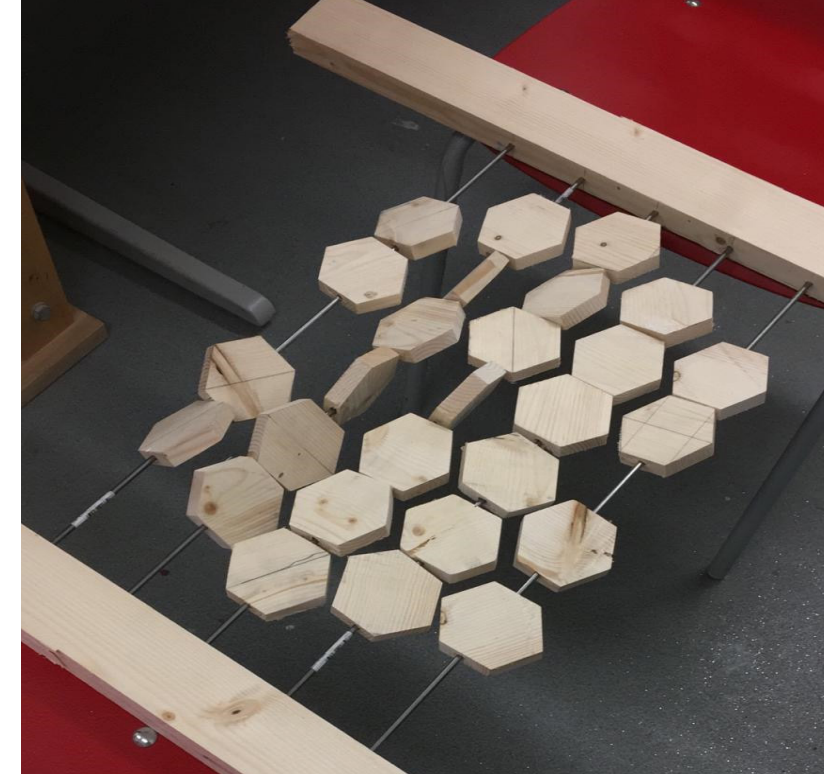
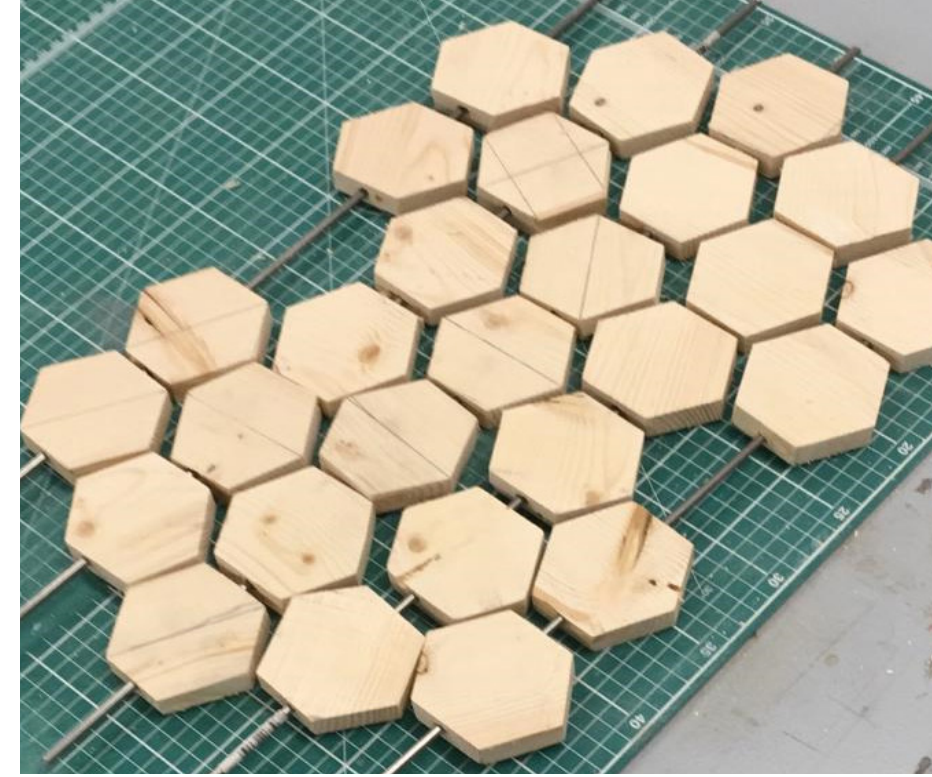
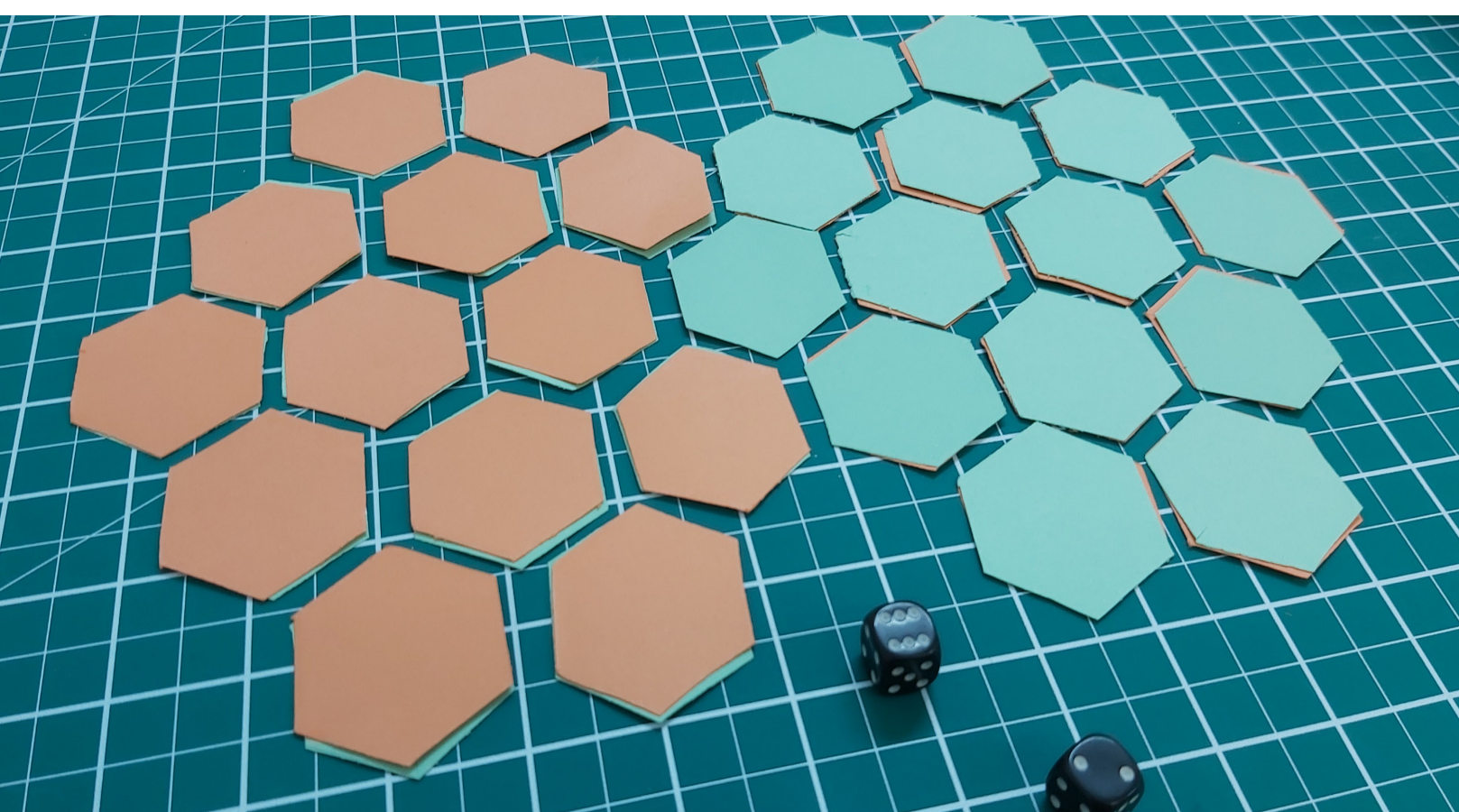
In context renders helped us visualise how we would integrate the game into existing infrastructure.

3D models allowed us to finalise the look and layout of the game board.



Paper Prototyping

With the paper prototypes we could begin testing the gameplay with volunteers. The physical format gave a more tactile feel to the game and made it easier to understand as we could demonstrate a few turns and the participants could very quickly pick up the rules of the game. We had to use regular dice or a random number generator to simulate the spinning tiles but besides that we could play as the complete game would be played. From here we began making our first few tweaks to the rules like the first to a full board minus three tiles was the winner.



Full Scale Prototypes

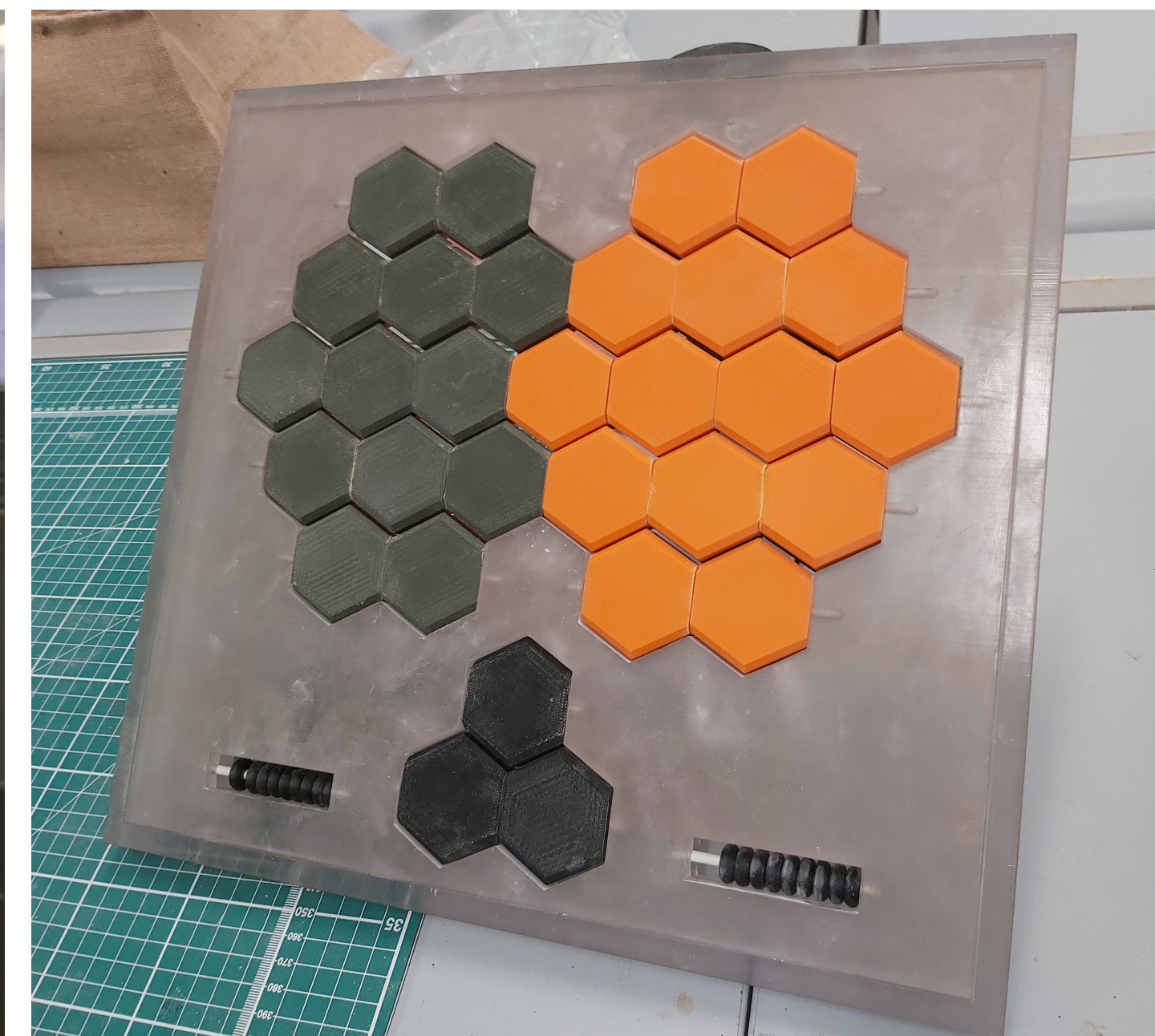
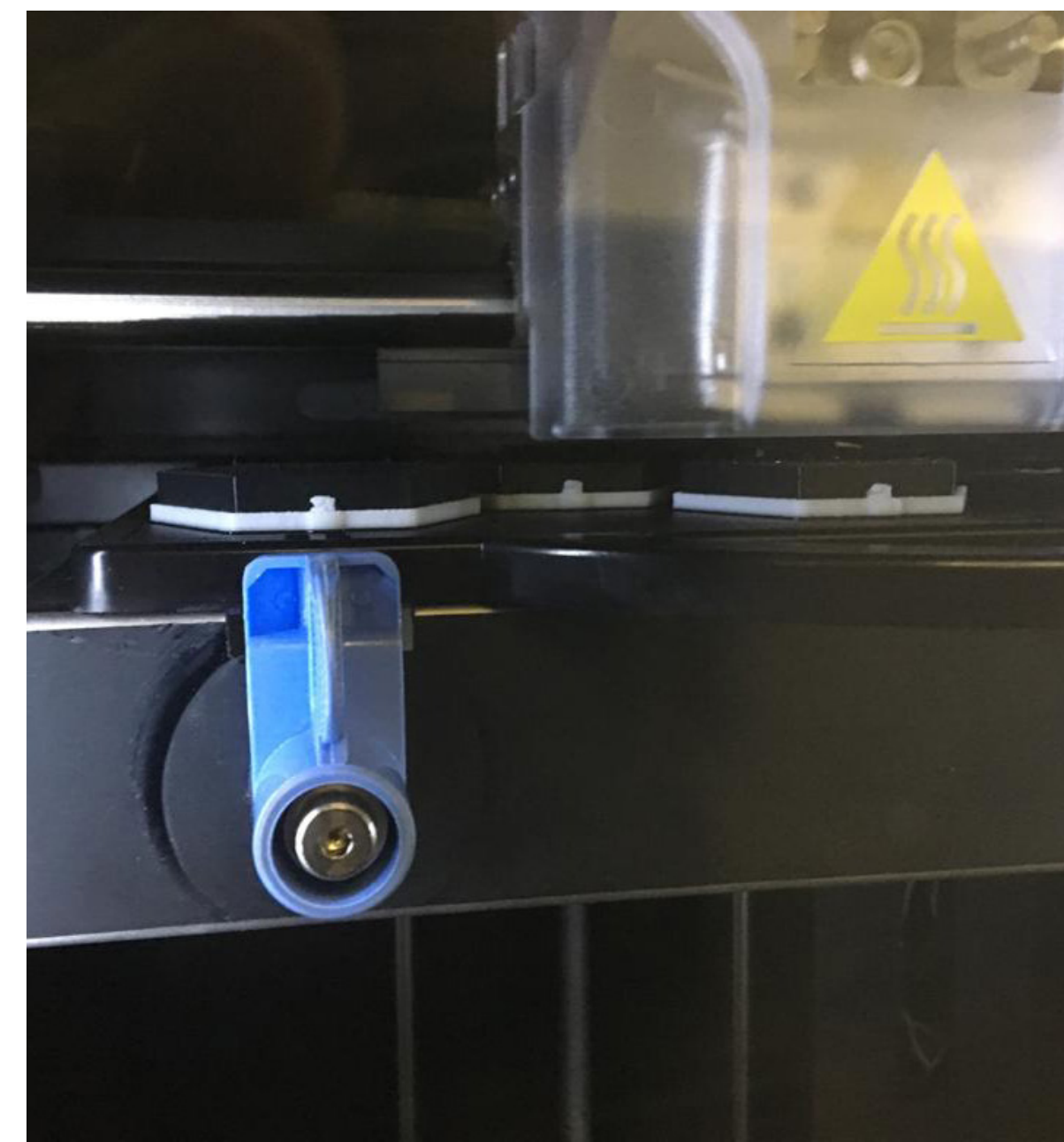
Working through to full sized 3D prototypes gave us a lot more insights into how the game would look and how it would integrate into train stations. Our first prototype was made of wood planks cut into hexagons and drilled out and connected by steel bars. We then used more planks to build a frame to hold the bars in place and from there we were able to assemble our first working prototype with the 5 x 7 tiled gameboard. We were able to use this for further user testing that was more engaging for the participant.





Final 3D Modeling

For our final model we wanted to create the best quality representation of our product with the tools we had available to use. We made up solidworks files with the dimensions we required and used them to get 3D printed peices for the tiles and the frame. Then with some sanding and adjustments we were able to the tiles together over a fibreglass rod which allowed them to spin. We designed the board to be spit in half so we slotted the rods with the tiles attached into the cuttouts we had made and clamped to whole board together. And from here we were able to create a full sized fully functional model



Project Summary

Our Project goals:

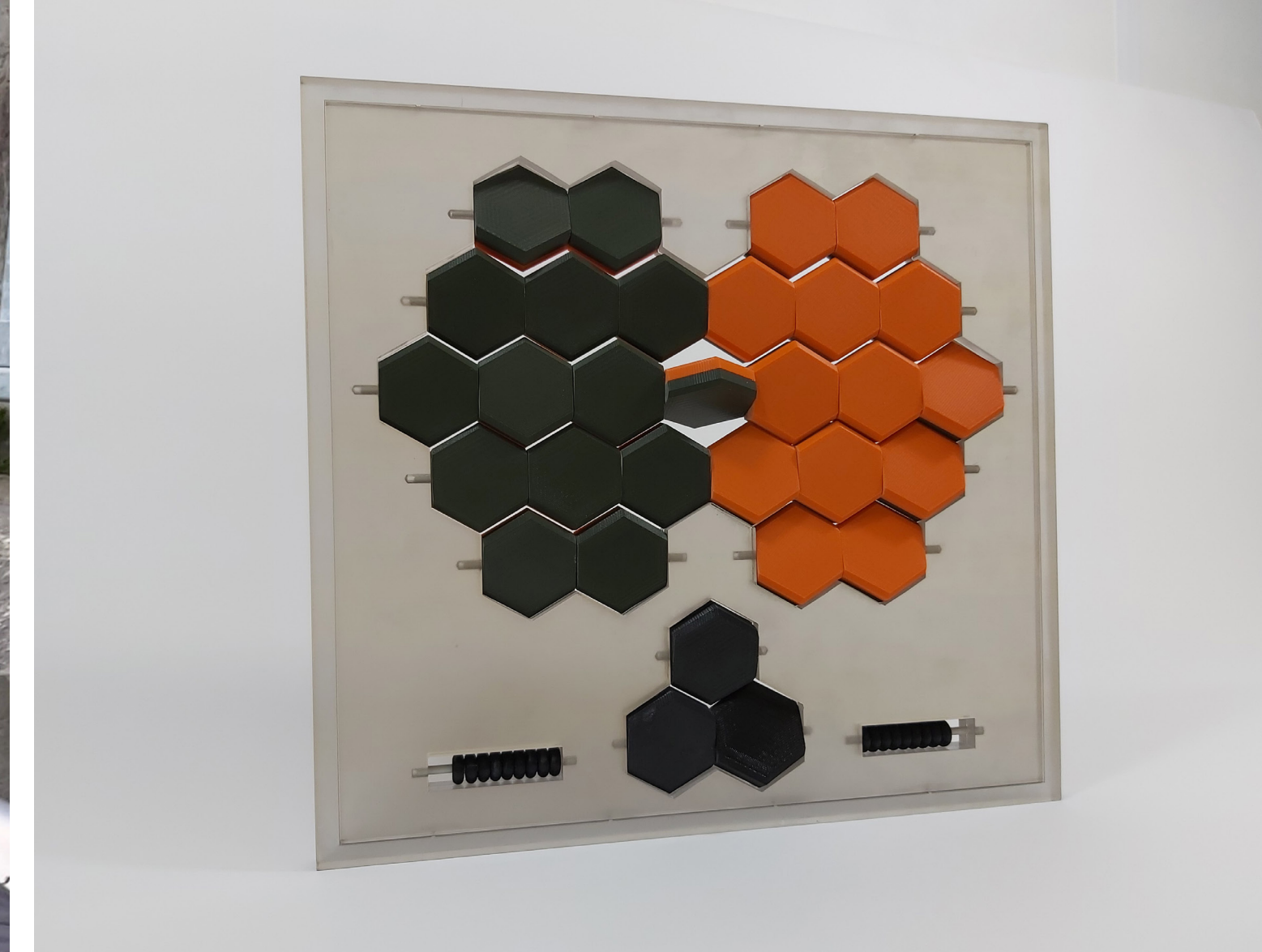
- To full satisfy all the requirements of the brief.
- To improve our skills in user research, ideation and prototype creation.
- To create a design solution which would appeal to Irish Rail in a fully pragmatic business sense.

Our Journey:

- Through our research and user investigation we found numerous directions we could have taken the project, from lighting to shelters but ultimately we settled on finding a way for strangers to connect and spark joy while they waited on the platform.
- Our solution resolved into being an gameboard focusing on inclusivity for all, and to give people a common ground to spark conversations and connect with their fellow passengers.

What we learned:

- Our biggest learnings came from understanding the insights our users gave us and relating them to the product.
- And then as the product developed from our model making, the direct feedback we got from people testing the final model were incredibly valuable for finalising our project.



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