Product Definition
HA5

Group 1 - DIS*play*

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187.B10 Design Thinking: Explorative Prototyping

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Introduction

In this document we are presenting our product and the prototype we have built for it, the design, all possible interactions with it and the surroundings and context it will be used in. Furthermore, we will describe the underlying visions behind the prototype, what materials have been used in the process of making it, what the product really is and what functionalities are included. The product identity will also be presented together with our thoughts behind the logotype, material choices, colours, fonts and shapes.

1. Product Design and Interaction

The goal of our product, DISplay, is to provide commuters, both ones in a rush and the ones that have more time to kill at the train station or bus stop, with meaningful interaction with a display. We decided that DISplay should blend in with the environment it is in but still be clearly visible to bypassers, which is the reasoning behind the choice of a white box, frame and stand around the screen. The white colour makes it look modern and clean, which would in turn attract people to the screen and make them interested to interact with it. The user is interacting with DISplay through an alternative interaction method using tangible strings hanging off the edge of the screen. These strings are connected to sensors that can register pulling force on the back of the monitor, which is making it possible for the user to interact with the device through pulling the strings. This opens up for simple and intuitive interaction, ideal for yes or no questions and other questions dividing the population, as well as simple gaming possibilities with few interaction needs. Being able to use these different interaction possibilities, together with the different needs of commuters depending on what time of the day it is, is what made us focus on two different scenarios during the development of our product, a daytime scenario and a night time scenario. The following sections will describe these scenarios, what the different interactions look like and in what context and surroundings they will take place.

1.1 Day Time Scenario

The day time scenario is focusing on users that are in a rush - commuting to or from work during peak hour, when lots of people are moving in the area and there is not much time to spare. Most commuters would not think of this as a time of the day when they have time to kill or even take in new interactive installations in the train stations, but despite this, there still might be a minute or two over while waiting for a train or bus or even while slowly walking out from the platform and onto the escalator. It is in these tiny moments in everyday life where DISplay will play a role. In this scenario, users will want DISplay to provide quick and easy interactions but with a meaningful value, otherwise it will be ignored due to time pressure. Therefore, the interface in the day time scenario provides a poll to be able to choose a standpoint in certain questions important in society, either political, health related questions or other topics that people care about such as sporting and cultural events. This makes it possible for the users to interact with the device quickly and easily and the first thought that comes to mind when seeing the question will be the answer, since the interface is ready with the question as the users walk past. The rest of the interface is simple, letting the users focus on what is important in the message of the DISplay. As well as the question, an appropriate image and two different answers are also showing, normally yes or no but this depends on the nature of the question. The user can then just pull one of the yellow and blue strings attached to the

monitor as they are passing by to make their voice heard, and in less than five seconds the voting process will be over and they will be able to move on with their day. As soon as the string is pulled, feedback is given to the user that the answer is registered in form of a "+1" entering the screen, indicating that the string pull was successful and the vote is counted. The overall results on the specific question are then being shown to the user in form of a dynamic pie chart changing depending on how many users have answered the different options in the poll. The reason for showing this is to give the user insight into what other people voting have thought in the same question. This might introduce new thoughts and feelings with the user, which is something we are aiming to achieve with the day time scenario and the poll. The pie chart is using the same colours, blue and yellow, as the strings pulled to vote, everything to make the process as smooth and intuitive as possible. The pie chart view is showing for a few seconds before the start screen with picture and questions plus the possible answer alternatives shows up again and the next user can place their vote to avoid the same person voting multiple times and therefore manipulate the results. If no user had been lining up to vote, the start screen will be static and wait for user input until someone shows up to vote next time.

1.2 Night Time Scenario

During night time, people are not as much in a rush as the day time commuters. Fewer people use public transport and there are usually longer waiting times on the bus stops or in the train stations. In this scenario, the travellers have more time to kill, time usually spent on their phone, listening to music, checking social media or playing games. The DISplay during night time is therefore something completely different compared to during day time, and it is accounting for the fact that there is more time to spare and the users want time to pass by faster while waiting for the train or bus. DISplay night time version still looks the same as before, the monitor with the white frame and the two straps for interacting with the device. The frame has an additional functionality in the night time scenario since it is reflective and therefore lets the user see when there is movement happening behind them. The idea behind this is for the DISplay to create a feeling of safety, even when the user is standing looking at the monitor with the back towards the station where other people are moving.

Naturally, the straps are still used for interaction even in this scenario, but here they are used as controllers in a game. This game can be played both as single player or multiplayer, allowing the users to kill time both if they are travelling alone or with someone else. When not being used, the DISplay interface is showing a teaser of the game together with the DISplay logo and simple instructions on how to start the game, either as a single player or multiplayer. If the user pulls yellow for single player, the yellow strap is the only strap used during the whole game. If instead the blue strap for multiplayer is pulled, the multiplayer mode is entered, and player one will be using the yellow strap while player two uses the blue one during the whole game. As the game starts, a yellow stickman is running on a road through the night, trying to avoid obstacles that the users can recognize as well known sights in Vienna. The obstacles are avoided when the users are pulling the straps making the stickman jump over them. Depending on how hard the straps are pulled, the size of the jumps will be different. Light pulls will make the him do a little jump and harder pulls will create bigger jumps making it possible to avoid many obstacles in one go. This gives our product a unique feeling that would not be possible

to create with simple button presses or touch screen clicks and opens up for the users to think outside the box when it comes to interaction methods. As soon as one of the players hits an obstacle, the game is over. This indicated with a game over sign and, if in multiplayer mode, a sign showing what player won. Both in single and multiplayer mode, a list of all the high scores will be shown as well, showing the top three scores from all the locations where DISplay is available. This way, the scores in different locations can be compared which might create rivalry between the "two teams", making the players want to play again to beat the users from other locations. From the game over screen, the user can then choose to play again in single or multiplayer mode by again pulling the yellow or blue straps, or quit the game making it possible for other users to try their gaming skills while they wait for the night bus.

2. Logo

The goal was to design a logo which will represent two major aspects of our project: engagement and fun. At first, we wanted to keep it clean at simple, so our designer started with a simple square design which would represent our display, and just the name of the project. After a few hours into the design, the first proposal was finished (Figure 1).
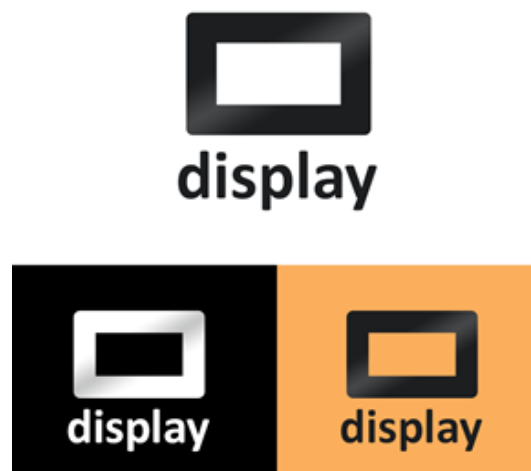

Figure 1 - Logo version 1

The first feedback round was very important for the further process of designing. The logo was well designed, but after some discussion we came to a conclusion that it was too serious for our project, and that it would drive away from the fun part. The logo should say something like: "I'm fun, try it out". Furthermore, we decided that the logo should for sure include two stretchy bands, which are the main input methods of our project. Because of that we also decided that our logo should not include any text at all. After few more design hours the logo went through some changes (Figure 2).

Figure 2 - Changes through design sessions

Our designer added two ribbons which represent the interaction type of our project in two colours which match our players in the game scenario and the answer options in the survey scenario. Also, two hand are added to the logo, one was representing how the interaction should look like, and the second should represent a symbolic wave.

After the second feedback round, we decided to get rid of the hands. We all felt it was a little bit too much. After agreeing that we should improve the bands and add a smile, lead us to the final design (Figure 3).
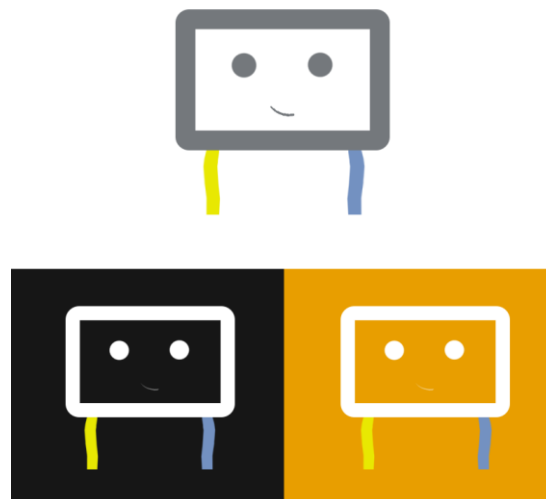

Figure 3 - Final logo version

The logo is now clean and simple, but on the other side it represents the major aspects of our project: engagement and fun.

3. Colour, Material and Visual Language

When designing the artifact, the thin line between playfulness and an unobtrusive feeling was of utmost importance: On the one hand, the product is supposed to stand out in some way when placed in an existing station (or its vicinity) of Vienna's public transport and encourage potential users to interact by its appearance; on the other hand, it must not visually clutter said

environments or irritate people that have absolutely no interest in using DISplay (To assume virtually every traveller and commuter in Vienna would want to use it would be highly presumptuous after all).

This duality of our approach is strongly reflected in the duality of our visual design: Being angular and single-colour, the case has a deliberately simple look, both the one for the monitor itself (Figure 4) and the one for the prototype's pedestal (Figure 5). Still, being made from acrylic plates, with its shiny surface and slightly silvery white colour, it is supposed to convey a bit of retro-futuristic look reminiscent of both arcade game cabinets of the 1970s and 80s and props from even older Science-Fiction movies: This touch was added to still prevent the case from seeming overly plain.

Figure 4 - The display's casing

Figure 5 - The pedestal's casing

The shininess of the case also doubles as a security measure: Like the little mirrors on ATMs, its reflective properties let the users see people standing behind them, easing people worried about muggers approaching from behind (Figure 6).
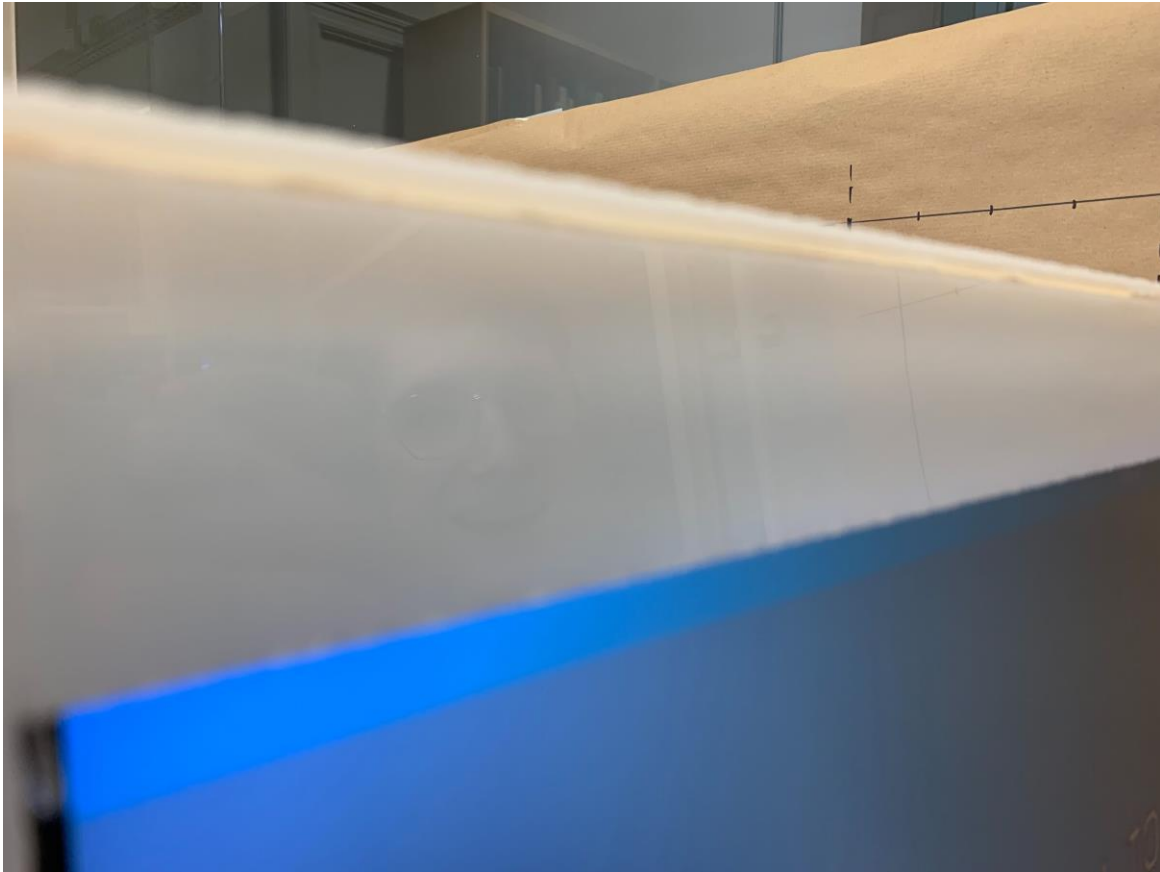
Figure 6 - The cases' reflective surface

In contrast to the angular, hard and monochrome casing - the part of the installation's ensemble that is designed to be primarily functional and does not have to be touched by the users - the actual interaction elements are flexible, soft and colourful (Figure 7): One could argue that gaudy ribbons (the colours yellow and blue being chosen to avoid disadvantages to people with red-green colourblindness) visually prompt people to touch and pull them, possibly being associated with a wide range of iconic images and actions (like strings used for switching on and off old-school lamps, ribbons used in the Olympic Games' rhythmic gymnastics or traditional maypole dances, and so on). In short: While display and casing were designed to be static and "serious", the ribbons were supposed to be the playful blurs of colour that clearly communicate their interactiveness by their appearance. Also, we deemed it very important for the interaction experience that the two ribbons would be the only interaction elements of the whole installation: Also including traditional buttons and the likes would potentially harm both the product's simplicity and its uniqueness.
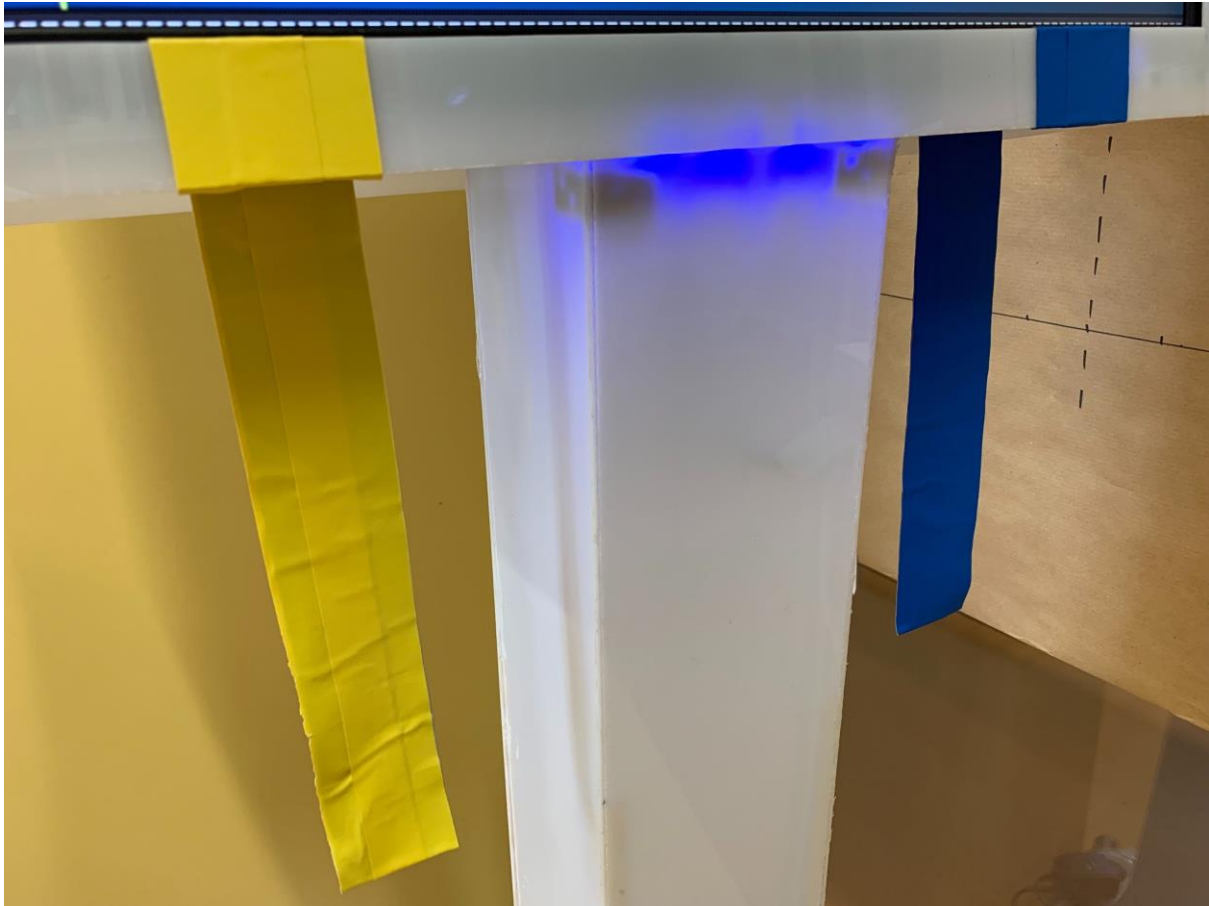
Figure 7 - The interactive bands

The design philosophy and visual language covered above extends to the optical design of the software, namely polling function and game, as well: In the polls, the answer options are clearly linked to the corresponding ribbons colour-wise (Figure 8), which also carries over to the evaluation diagram (Figure 9):

Figures 8 and 9 - Answer screen (left) and diagram screen (right)

And in the game (which is generally designed to be very colourful, to communicate its interactivity just like the ribbons; again corresponding to the logo, in which the screen's "face" and the gaudy ribbons convey playfulness and interactivity), the avatar for player 1 is displayed in yellow, just as the corresponding ribbon; likewise, ribbon and avatar for player 2 are blue (Figures 9 and 10). Inserts alluding to the difference between the two avatars, e. g. addressing who won, are coloured in the same way as the respective avatar as well (Figures 11 and 12), while the more general ones, precisely the standard "Game Over" message (Figure 13) and the "Pull to Play!" prompt (Figure 14), use a silvery hue reminiscent of the casing.
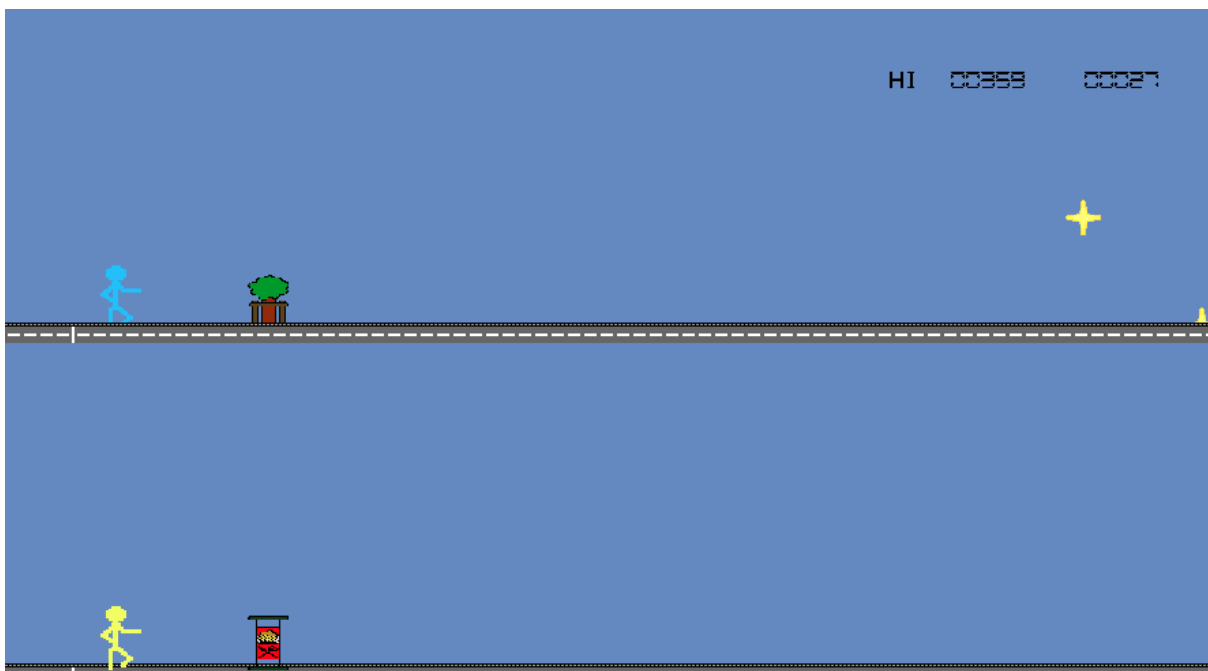

Figure 9 - One player game

Figure 10 - Two player game

Figures 11, 12, 13, 14 (from top to bottom) - Winner-specific "Game Over" inserts (Figures 11 and 12), standard "Game Over" message (Figure 13), "Attract Mode" prompt (Figure 14)

Finally, it should be noted that the part of the case between the lower edge of the screen and the visible "beginning" of the ribbons has been painted in the corresponding colours, so that they seem to directly "protrude" from the screen itself, strengthening the connections between the ribbons and the interactive game and polling elements (Figure 15):
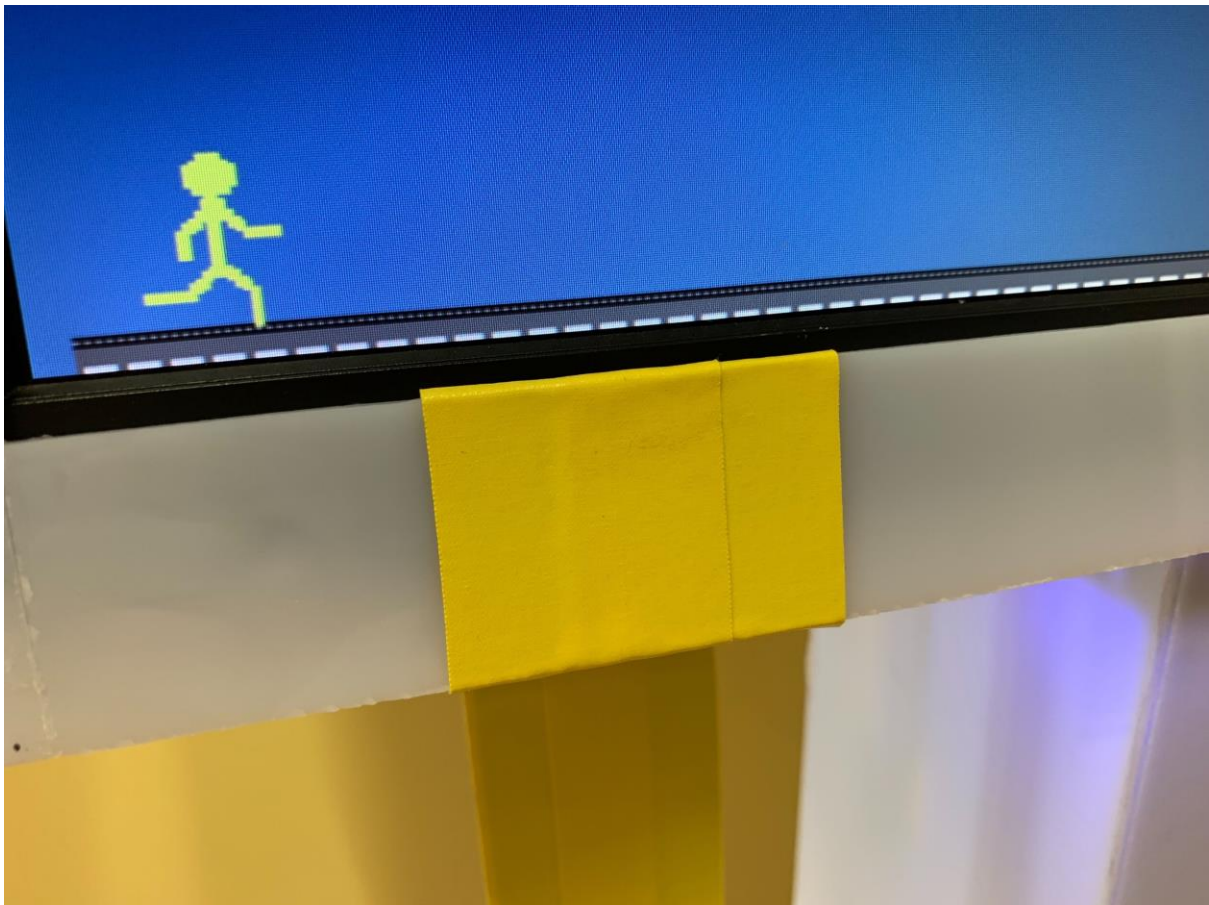

Figure 15 - Highlighted connection between screen and ribbons