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Test Script

**Opening**

* Welcome \_\_\_\_\_\_\_\_\_ and thank you for being here today in this focus group session. The purpose of this session is to determine how well the Light Grid Game alleviates loneliness and how well the user interacts with the interface. A Usability test is where users from the target audience are brought in to complete a series of tasks and honestly answer some questions based on their interaction with the product. Right now, you are the user and the product is the Light Grid Game. This test is being performed on the product, not you. So, I will ask you to perform the test tasks and think out loud. “Thinking out loud” means explaining your thoughts and why you are doing what you are doing. With all that said, let’s get started.

**Questions**

 Scenario

* You are socially isolating due to the coronavirus. In-person school is closed and so you can’t physically see anyone, except your family. You have a gaming console, but your parents limit you to 1 hour per day.
* You woke up and gamed with your friend Trenton before school for 1 hour. Now, you just finished up online school for the day, but your parents won’t allow you anymore screen time. You are kind of bored now. You remember you convinced your parents and Trenton’s parents to buy a Light Grid Game for each of you.

 Follow-up Questions

* How old are you?
* Would you consider yourself an introvert, extrovert, a combination, or you don’t know?
* Have you seen any of your friends in person in the past 10 days?
* Since your school has closed and transitioned to online classes, have you experienced any degree of loneliness? If you have, rate on a scale of 1 to 6 with 1 being a little lonely and 6 being extremely lonely. (Likert scale)
* How lonely do you feel currently? (Likert scale)

 Test Tasks

* Before it turns on, how would you expect to turn on the system?
* How would you play with it?
* How would you hold it?
* How do you think you would connect with your friend?
* Your friend Trenton is not available to play right now, but he will be later, so you decide to get ready. How would you use this product?

 Follow-up Questions

* How responsive do the buttons feel? (Likert scale)
* How easy was the system to use? (Likert scale)
* What did you enjoy or like about this system?
* What pain points exist in the system?
* How comfortable was the position of the buttons? (Likert scale)
* How comfortable was it to hold? How comfortable was it to use on a table? (Likert scale)
* After using the LGG, how lonely do you feel? (Likert scale)
* What was your overall experience? How you feel after using this system? (Likert scale)

**Closing**

* That concludes this usability test. Thank you for participating. The video captured today will be used to improve the usability of the interface and the entire product. Please do not be afraid to contact me if you have any questions, concerns, or would like to provide further input.

**NOTES TAKEN DURING USABILITY TEST (transferred from written notes)**

* Seemed eager to play
* It seemed easy to quickly start playing
* Navigating between single-player mode and two-player mode, needs to be easier and more apparent
* Expected battery/switch instead of small button to power system
* Liked design when on the table
* Gave it a 4 out of 6 while holding it, but stopped playing and looked uncomfortable from side angle
* Hands were big enough to hold and use thumbs to play on right side, but left side with the breadboard and wires was too big and uncomfortable
* Bugs were obvious and problem-some, buttons were completing circuits when not even being pressed

**Videos and Pictures**

* <https://photos.app.goo.gl/mAxot4SjWRdCXExn6> - Side angle in usability test
* Front angle in usability test in zip file
* Overhead mini-walkthrough video
* Pictures in zip file

**3D model**

* <https://a360.co/388ht4f>

Written Analysis

I find that games are entertaining, and they are something to do. Usually, games become more fun when played with other people. I designed the Light Grid Game (LGG) for kids aged 8 to 12 to cope with loneliness while practicing social distancing. Using the greatest capabilities of Arduino, I am affording kids to continue developing their social skills. I tested the Light Grid Game using one participant in a usability test. The test is designed to determine how well the system helps someone cope with loneliness and highlight interface problems, form factor issues, and system bugs.

The results of the test were underwhelming. The Arduino and the second breadboard could not fit in the prototype, as wires were connecting since the insulation is subpar. After moving the Arduino and second breadboard to the box's left side, button circuits were completing by themselves at a much lower rate than before. However, it was still a significant issue. It also affected the form factor of the LGG. The participant expressed some awkwardness when holding the system in both hands. Another vital part of the Light Grid Game is the two-player mode so friends can connect and compete against each other. The problem is that I only had one Arduino in my inventory, capable of connecting to the internet. It is one of the main ways it helps someone cope with loneliness, and unfortunately, its effectiveness was not able to be thoroughly tested.

I had to ask for task one and task four in multiple different ways. The participant was also conflating play and use as the same thing when it is not intended to mean the same thing for this test. So that was an issue for task 2 and task 5. The participant was anxious to play and generous in their assessment of the form factor.

It is hard to draw definite conclusions, but there is potential with this system. Even with disappointing usability test results, the participant gave the overall system a five out of six on the Likert scale. The participant was consumed with the system based on the video captured, and he seemed eager to start playing the game before I said any direction about using the system. The main thing that needs to be improved is the wiring. Whether it's the insulation of the wires or the wire placement in the system, or both, it needs to be fixed so the system stops completing circuits with the wrong power source. If the wiring is fixed, the form factor and aesthetics will improve with it. The next biggest problem is the two-player mode. It is necessary to have a second Arduino to connect to the internet, but the code needs to be completed. The two-player code was put on hold due to exceptional circumstances.

I learned that the Light Grid Game audience should be a little older, even though it's a simple game. I could also add a free play mode where younger kids would not have to conform to the game structures or be forced to play with friends. I still want the audience to be afforded the ability to connect with a friend over the internet.

Usability Test Report

## Problems/Questions to be solved

How does someone start to use the Light Grid Game?

How effective is the Light Grid Game at helping someone cope with loneliness?

How does the user naturally use it? (on table or in hand?)

How easy is the UI to interact with?

Did it feel good to hold/use?

What are major bugs and what needs to be addressed?

## Data collection methods

Record video face cam to record facial expressions

Record video side angle to get user interaction

Time how long an action takes or how long it takes to answer a question about where to navigate

## Recorded results & Analyze data on how it answers research questions

* After turning it on, the participant followed the prompt on the LCD screen and responded to it in just over a second.
* Questions about how to turn on system and how to change modes and how to connect with a friend each took over 8 seconds to answer.
* The participant said they figured it would be a switch to turn the system on and off.

## Recommendation

I recommend replacing some of the wire for better insulation, enlarging the length of the LGG to fit all the components, and making another LGG to test the two-player code. From there, another usability test could be run to work out some of the interface problems, including making the “switch mode” stand out and adding a power switch.