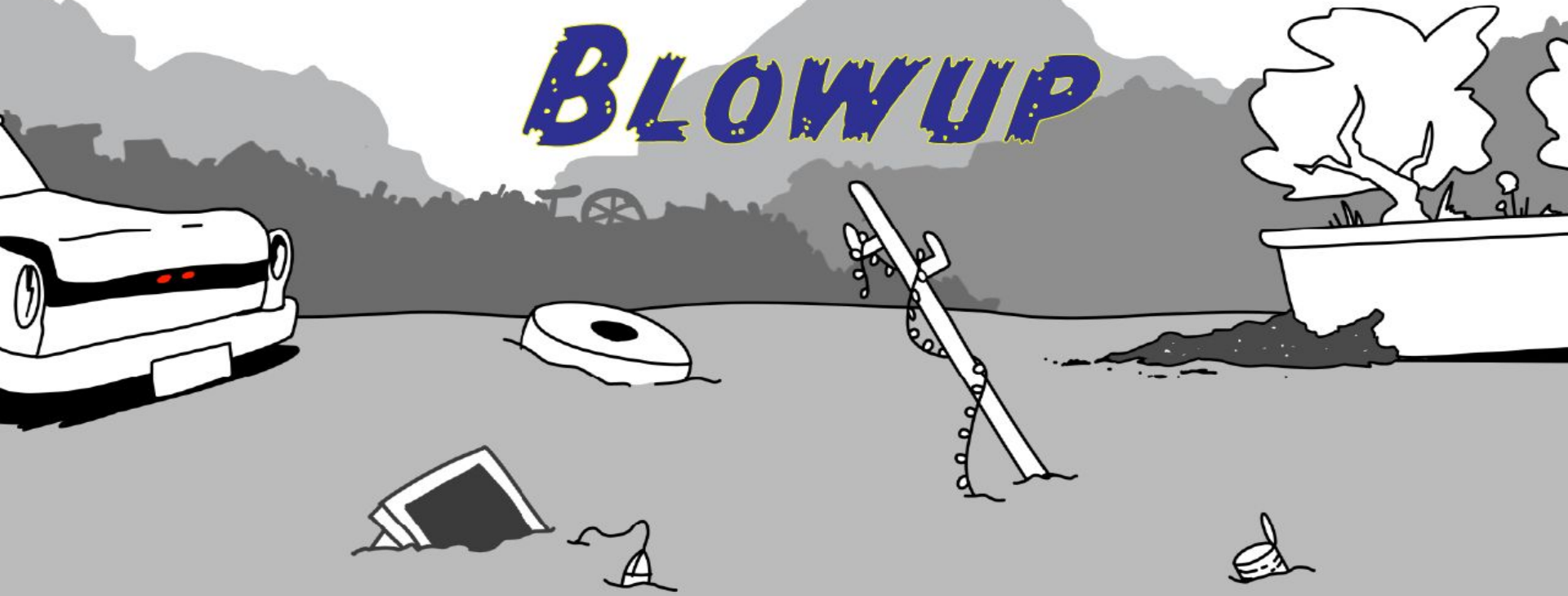
Space Junkyard Blowup



Shannen Guntoro & Leanna Barwick

Space Junkyard Blow-up

Life as a space junkyard hauler is a sweet job, with many perks like being your own boss and access to all the Space garbage that you could want! But there are also risks that come with the territory.

Space Junkyard Blowup is a two-player puzzle game that explores what happens when a friend blows up into pieces on the job, and the only thing that can help them is the junkyard scraps and a communication channel between the players.

Junkyard A

Link to interactive webpage

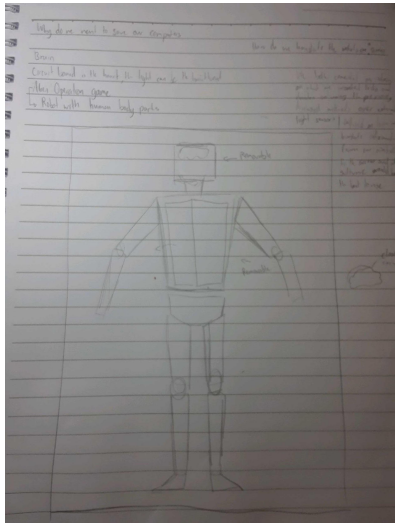
Junkyard B

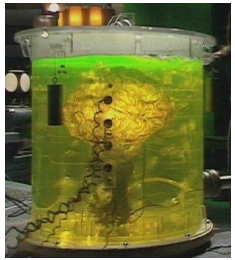
Link to Interactive webpage

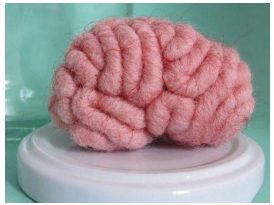
Game Jam Day 1 & 2 Notes

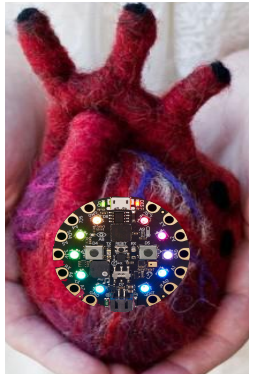
Jam Day 1

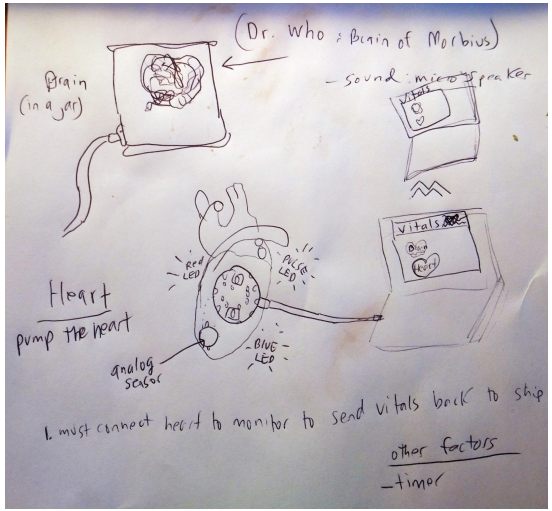
- What happened?
  - We came to the jam with an idea in mind, and throughout the course of the day refined our idea.
- What decisions did you make?
  - To divide the tasks (both during the game jam and in the game play) so that it was balanced between the makers/players to be done in a remote setting
  - To forgo external sensors (eg. light sensors, pressure sensors) and utilize what is unique to the circuit playground board and textiles (eg. analog sensor, digital switch with conductive textiles)
- What new insights or ideas came up?
  - We became aware of some limitations related to working as a team remotely
- How did the remote game jam process help (or hinder)?
  - A better grasp of the technology, it's limitations and what we can do with it

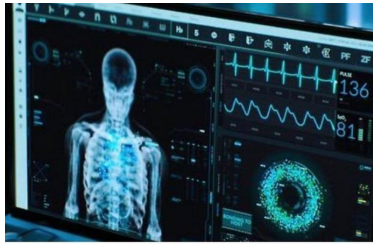












Jam Day 2 - To do

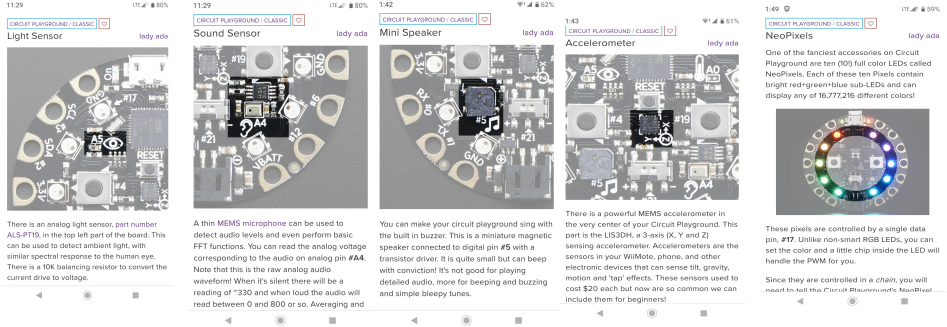
- Webpages
  - Shannen
    - Needs to do backdrop
    - Needs Leanna drawings
    - Need Shannen drawings
    - Hints
    - Description
- Shannen puzzle
  - Sew into textile thing make pretty
  - Code maybe, neopixel respond to game being won
- Leanna puzzle
  - Send Shannen pics
  - Load the code kate sent onto the controller
  - Make my brain
  - Code neopixels
  - Video (will do on wed/thurs

Ideation

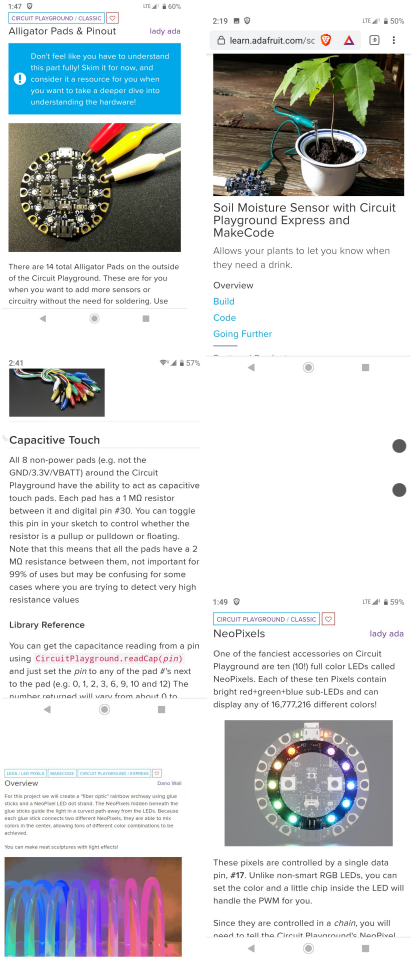
Softparts and Hardware

We came into this game Jam with an idea and narrative we wanted to explore; soft materials mimicking human body parts sensinsing and impacted by external inputs and responding with various outputs, using the Circuit Playground Classic controller.

My creative process is both driven by narrative concepts and inspired by the physical materials. I spend time on initial ideation to understand what I am working with as far as I can reach. I researched each sensor and aspect of the controller. I found tutorials that could be adapted to fit with our concept. While learning about the functions and interactions for the sensors and components, I also think about how this is similar to a body's needs or ways of being.



- Heart Beat Puzzle
  - Accelerometer recognizes taps
  - Could be used to "tap" start the heart
  - Neopixels could mimic pulse (in red/blue vein blood like colors)
- Make the "patient" more comfortable Puzzle
  - Sound sensor listens for determined volume threshold and when the amount is surpassed a noise plays
  - What does comfort or non-comfort sound like in terms of what noises the mini speaker can produce?
  - Light sensor set to responds to indoor room lighting and when the body part is covered
  - "Patient" needs to be covered by a blanket because 'they are cold'
  - Eyes need to be covered because the light in the room is too bright



Ideation - Brain in Jar Puzzle

Because brains need to be wet

- https://www.technologyreview.com/2018/04/25/240742/researchers-are-keeping-pig-brains-alive-outside-the-body/
- https://www.learning-mind.com/is-it-possible-to-keep-the-brain-alive-outside-the-body/

https://learn.adafruit.com/soil-moisture-sensor-with-circuit-playground-express

Could use the same concept of conductive material sensing moisture from soil; but applied to our narrative

- “Brain” (constructed from a soft spongy foam material) needs to be put into water and gives an output (eg. sound/alarm) when the conditions are too dry
- There could be other parts that are found, and the player needs to figure out how to use them together; the brain would go into the jar.
  - Maybe the jar base is where the circuit playground is positioned, and the “brain stem” (alligator clips) need to be connected to the hydro station
  - Other parts could connect this way

https://learn.adafruit.com/glue-stick-archway

- Neopixels could add effect when brain is in water
  - <Note: Glue stick effect did not work well. Too opaque?>

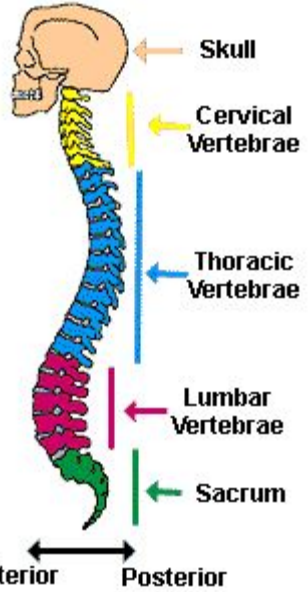
Spinal Cord/ Vertebrae

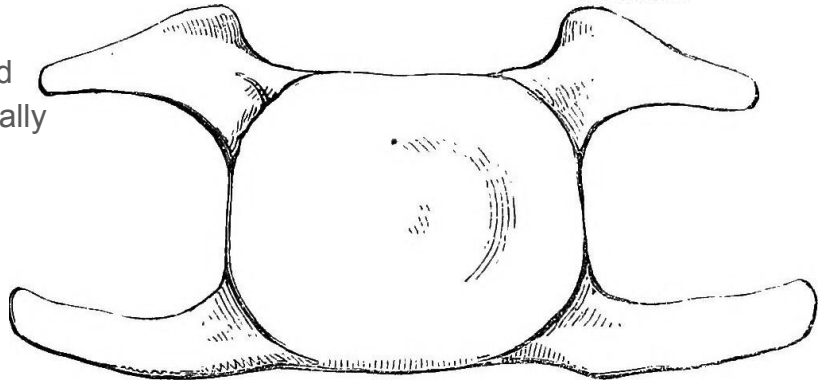
Link

-The Spinal Cord essentially acts as an information Superhighway. It relays signals to and from the brain

Link

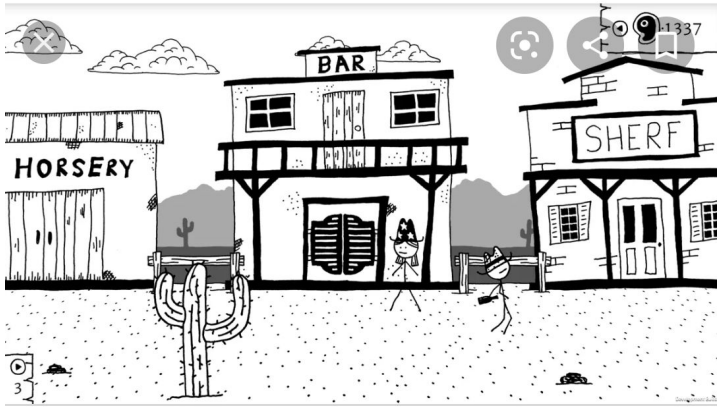
- Spinal Vertebrae aren't hollow and are filled with marrow, which is usually red (in younger whales)





Collaborative Aspect of game

- In the game narrative, a team of space garbage collectors have gone off looking for trash to haul, and tragically one of the crew blows up in an accident, causing their body parts and organs to spread in different areas of the junkyard.
- Each player will have the other player's clues, and they will have to communicate with each other remotely
    - Make 2 separate “clue” website pages
- Each page will display an image of a space junkyard
- “clues” will be a clickable png that will link to a page with the individual clue specifics
- Each puzzle will have 2 clues
- The COVID-19 lockdown and working in remote isolation from each other worked its way into the game universe and we designed around that by using the 2 separate websites so players are encouraged to communicate to accomplish their shared goal.



Polygon

West of Loathing review - Polygon

Visit

Backdrop style inspiration (stickman simple)

Brain in jar clues

- Dr Who vhs video tape
- Medical textbook page about

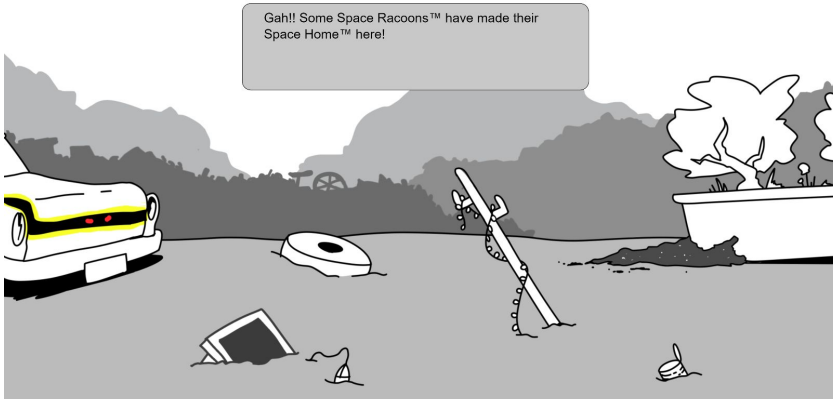
Spinal Diagnostic tool clues

- Pages from the “instruction manual”

Process

Clue Webpages

Collaborative Clue Webpages

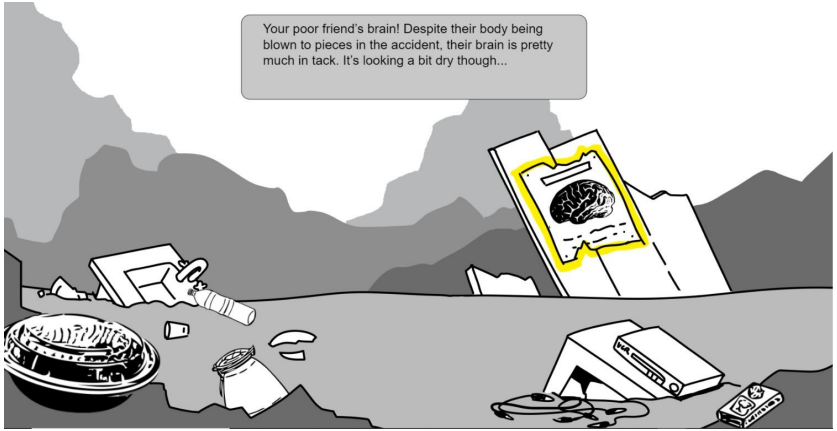


Two web pages were created with p5.js which serve as a virtual area players explore to get hints

For the player with the Brain in Jar puzzle:
https://editor.p5js.org/mcshanneng/present/HCcbWnu_5

For the player with the Spinal Cord Calibrator puzzle:
https://editor.p5js.org/mcshanneng/present/HCcbWnu_5

Google Doc of Hints:
https://docs.google.com/document/d/1u196m9Yw9owQbJ_fM3CSUDUUvCCGuk9sf_9eXdgjwpc/edit?usp=sharing

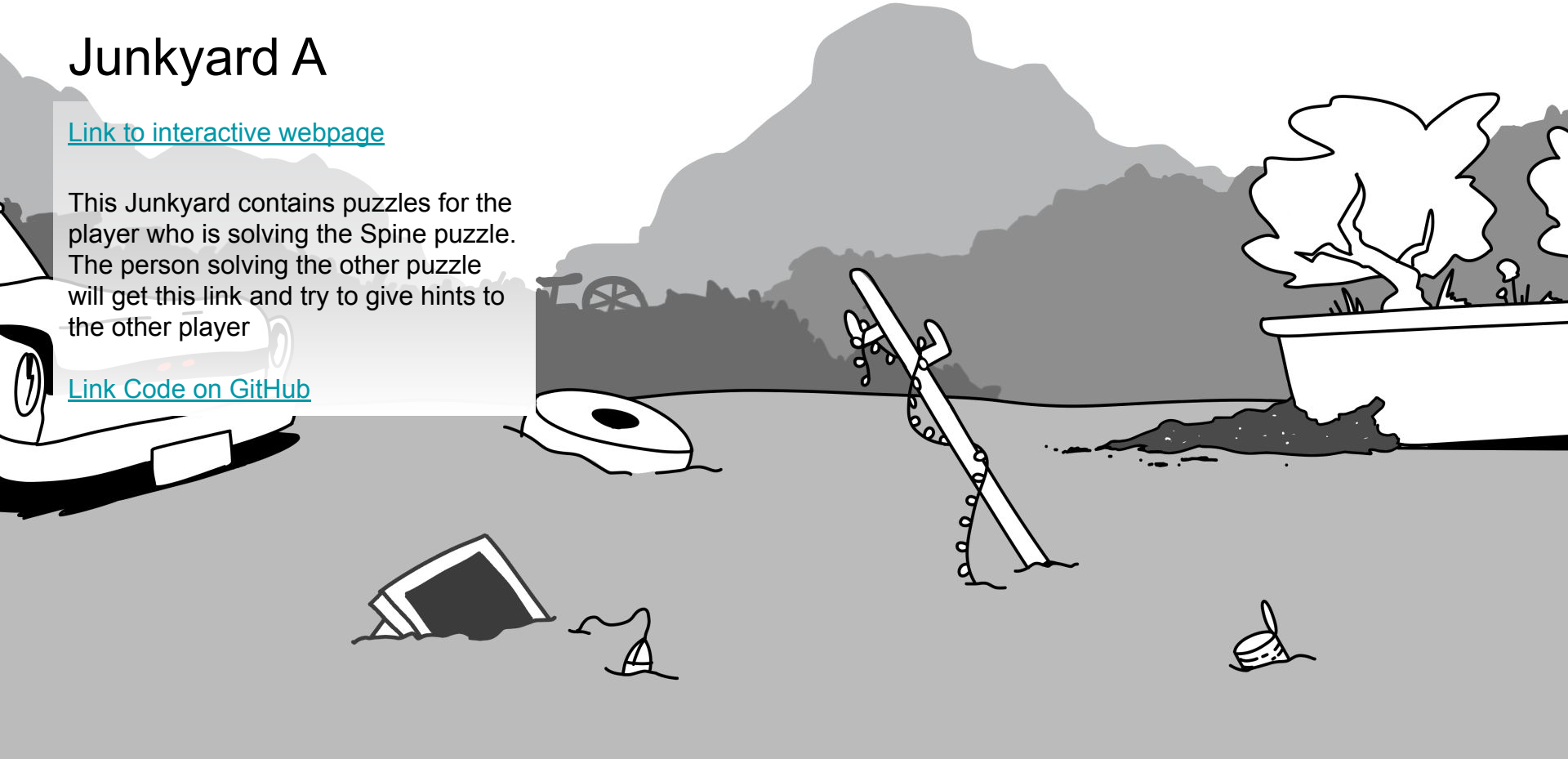


Junkyard A

Link to interactive webpage

This Junkyard contains puzzles for the player who is solving the Spine puzzle. The person solving the other puzzle will get this link and try to give hints to the other player

Link Code on GitHub

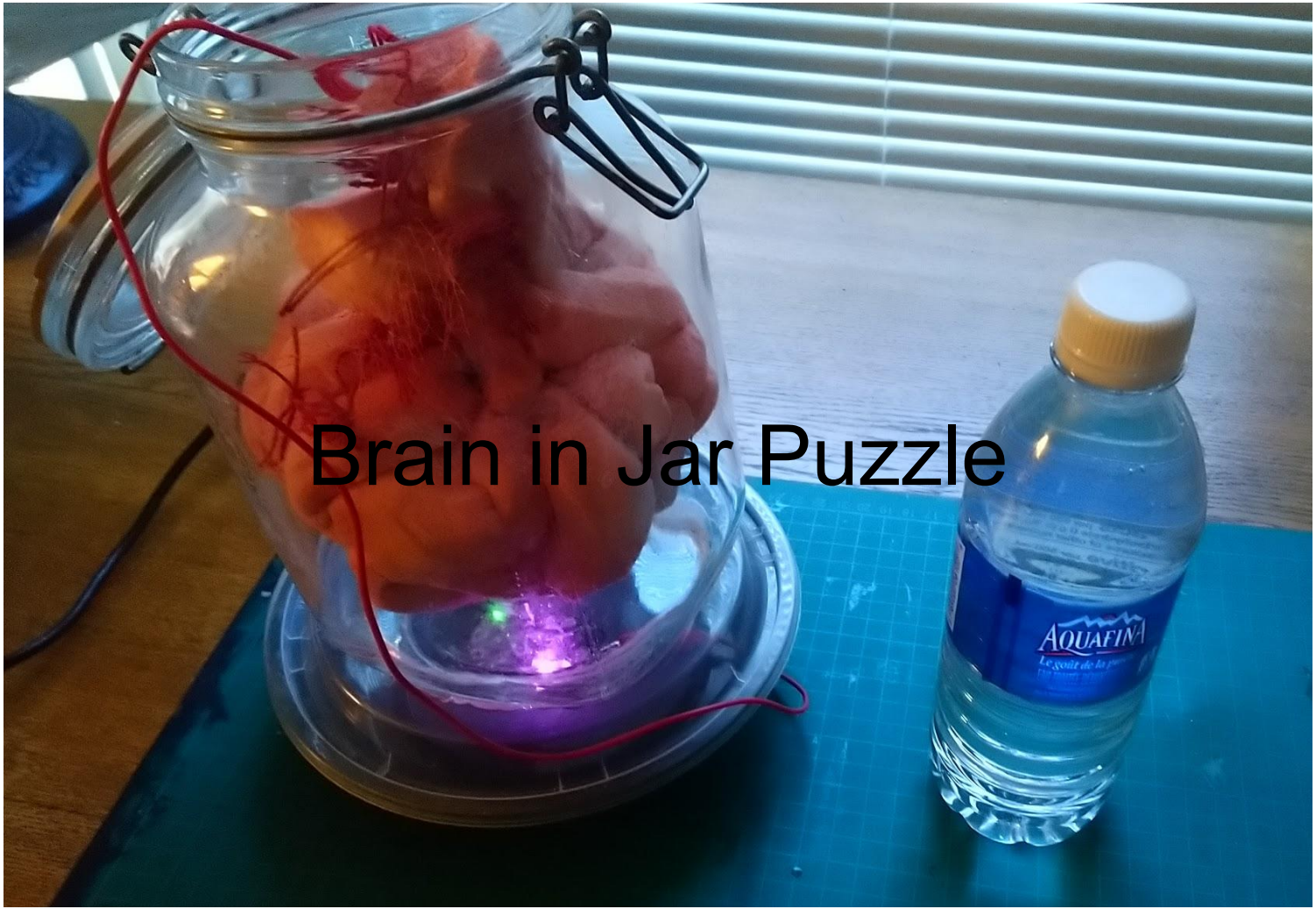


Junkyard B

Link to Interactive Page

This Junkyard contains puzzles for the player who is solving the brain puzzle. The person solving the other puzzle will get this link and try to give hints to the other player

Link to Code on GitHub


Brain in Jar Puzzle
AQUAFINA

Brain in Jar puzzle - How it works

The brain needs to be hydrated.

The Circuit Playground Classic can detect the capacitance (the ability to store an electric charge) on an analog pin (in this case, pin #12). As the moisture around the conductive material increases, the value increases (we're creating a bigger capacitor). Most dry materials don’t work as well for electricity (except metals and conductive textiles) so the value read by the Circuit Playground Classic will be lower.

Electronic components

- Circuit playground classic
- Alligator clips
- Conductive soft material
- USB micro-mini data cable

References

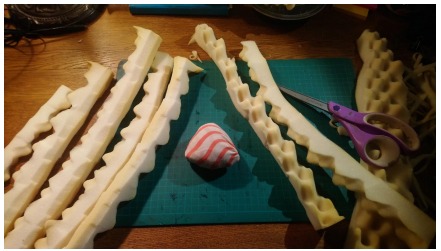
- https://learn.adafruit.com/soil-moisture-sensor-with-circuit-playground-express
- https://www.brainfacts.org/3d-brain#intro=false&focus=Brain

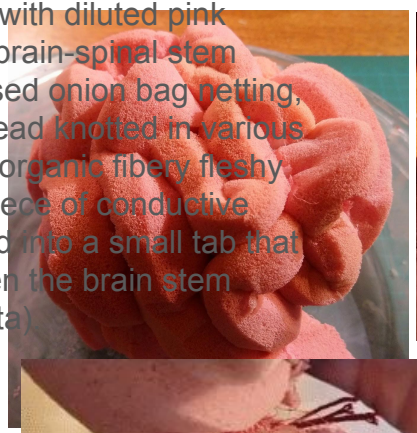
- Soft memory foam (for brain)
- Glass jar
- Plastic container (enclosure for controller and base for jar)
- Bottle of water
- Acrylic paint (pink)
- glue sticks and glue gun

Brain in Jar - Physical Build

Jar: Cut a hole in a plastic take-out container lid and fastened to the jar base with hot glue, so the jar is stable and raised above the container base which encloses the controller.

Brain: Cut foam into rounded edged strips and coiled onto fabric ball, mimicking brain folds, fastening with hot glue. Painted with diluted pink acrylic paint. For brain-spinal stem detailing repurposed onion bag netting, strands of red thread knotted in various places to give an organic fibery fleshy texture. A small piece of conductive fabric was stitched into a small tab that was sewn between the brain stem (medulla oblongata).





Brain in Jar - Electronics Build

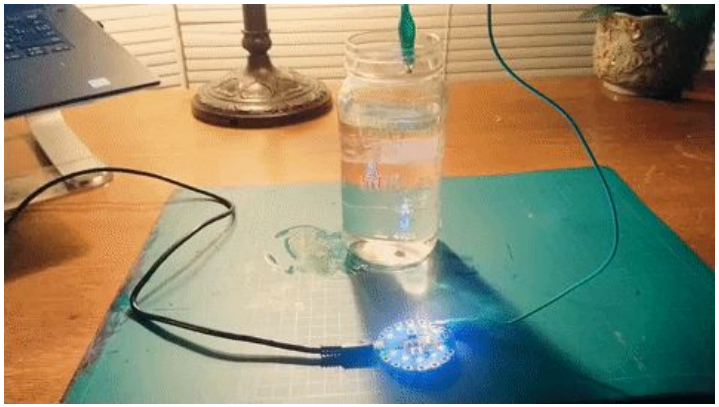
The alligator clips onto the Circuit Playground Classic capacitive pin, pad#12. The other end clips onto the conductive material, attached to the foam brain. The USB cable provides the Circuit Playground power.

For the Code portion of this build, the Circuit Playground Classic was connected via a USB cable to a computer running Arduino IDE. The tutorial this project used was for the Circuit Playground Express and the Social Body Lab helped translate the code to use with the Classic.

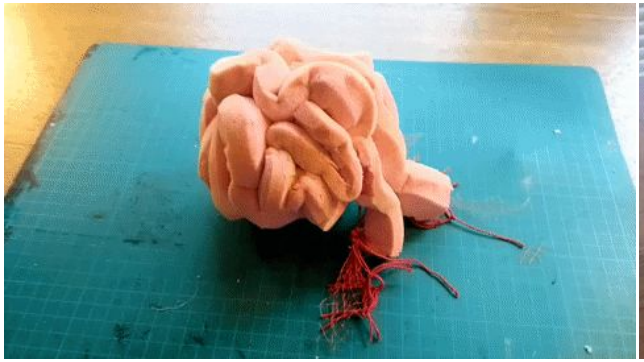
In the final piece, the code takes a moisture value (read as dry) and gives a flashing pink neopixel reading if the reading falls below this dry amount. When the conductive fabric is wet the neopixels will read as neon green. The value read by the Circuit Playground Classic is set to a level that might be a good dry soil value 20. This number can be adjusted to give a better accuracy.

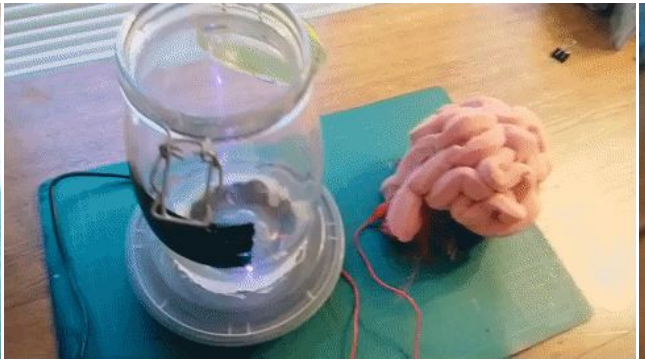
Circuit image need

Link to code:
https://github.com/Leanna-B/Textile-game-jam/tree/master/brain_in_jar_cap



Testing two different conductive materials (a nail and a conductive piece of fabric) in a jar of water





Brain in Jar Puzzle - Final

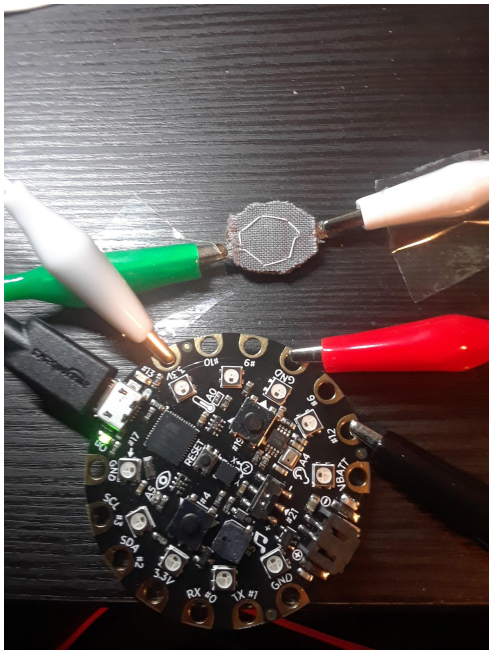
Brain is attached to electronic components with alligator clips, which signals an oscillating ring of pink lights below the jar. Brain is put into jar, and when water is added to hydrate it, the lights beneath jar turn lime green.

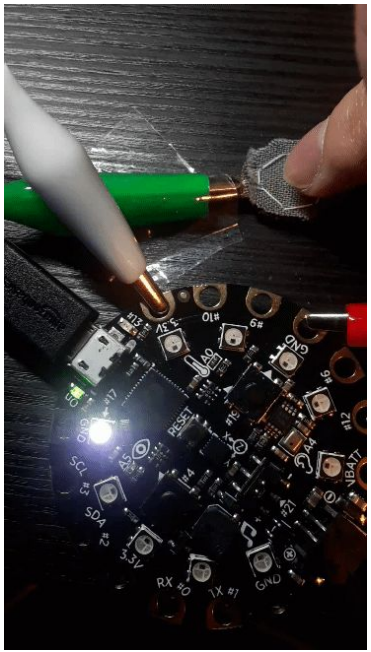
Spinal Diagnostic Puzzle

Initial Prototypes of Analog Inputs

I started out by trying to create the analog sensors with the conductive fabric and velostat.

For the prototype I just connected everything with crocodile clips and used the base code provided by DMG

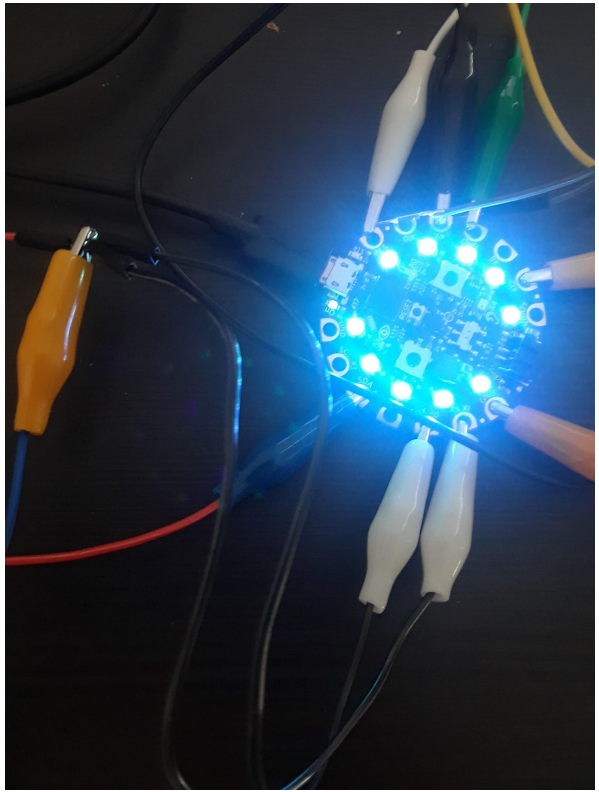


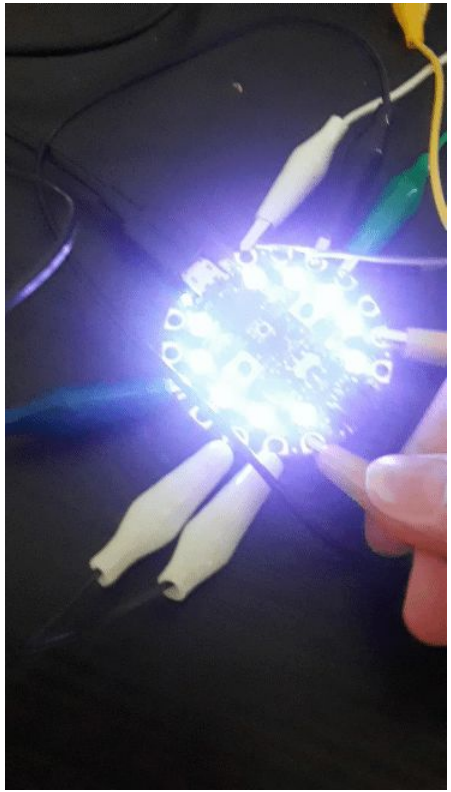


Initial Prototypes for Digital Switch input

The switch prototypes only used crocodile clips. I wanted to test the code so that 3 switches had to be connected before the lights could turn on.

Link to Prototype Code





Merging the prototypes

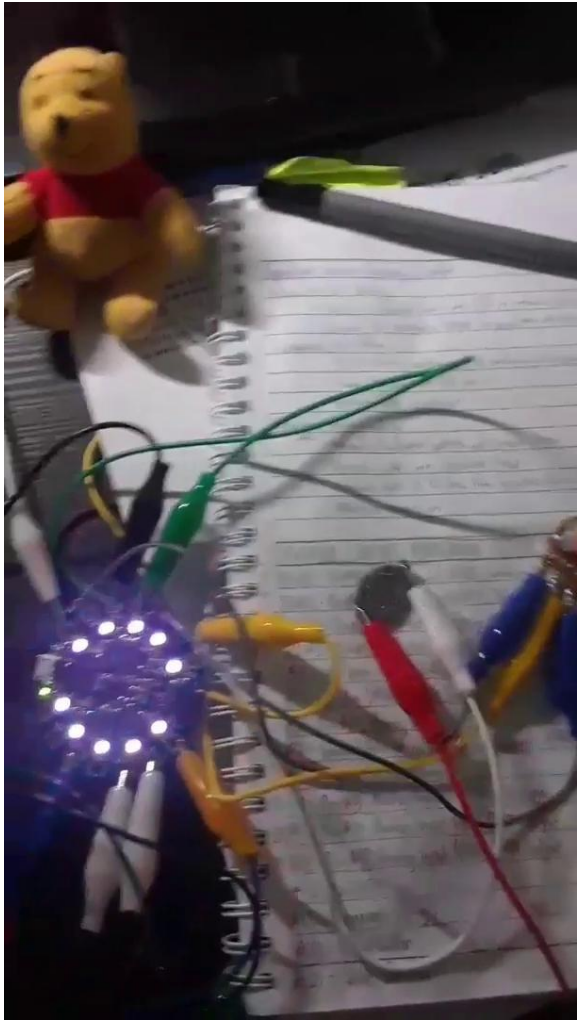
After trying both methods, I decided to combine them and changed it up a bit. Instead of the number of neopixels that lit up, I changed their colour based on how hard the analog sensor was pushed. For the lights to turn on, all the switches have to be connected.

I also made it so the puzzle was responsive to right and wrong answers, if the puzzle was solved and a button was pressed it would light up green. Otherwise it would only light up red

Final Prototype

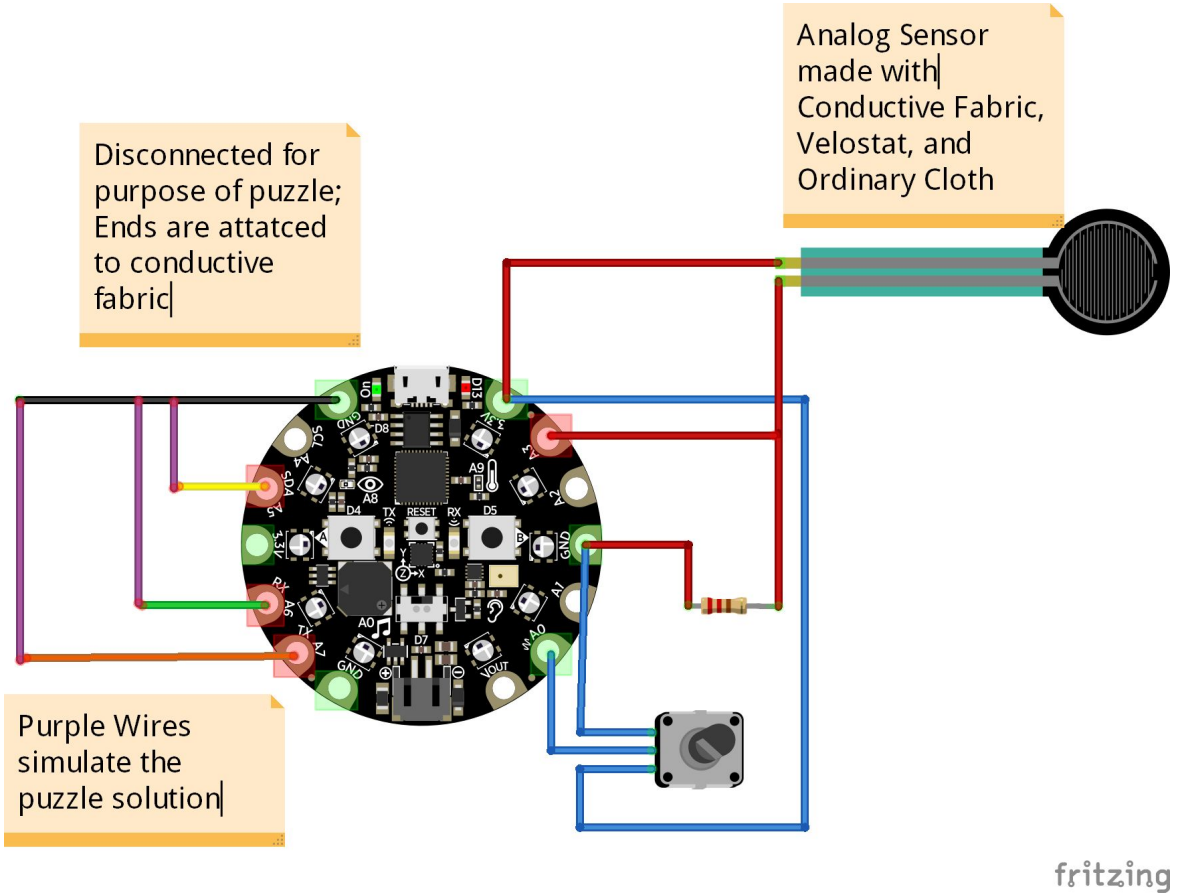
After everything was figured out I changed the green light to indicate the puzzle was done to a Rainbow chaser that was more permanent. So the player wouldn’t have to keep holding down the button for affirmation

Code for final



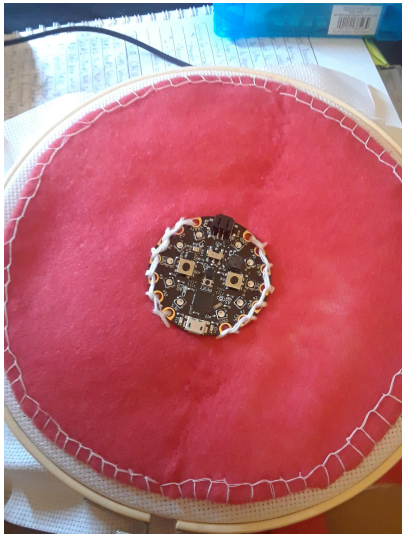
Construction

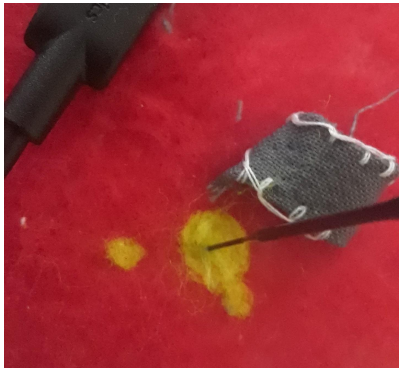
Circuit diagram displaying the connections in the circuit

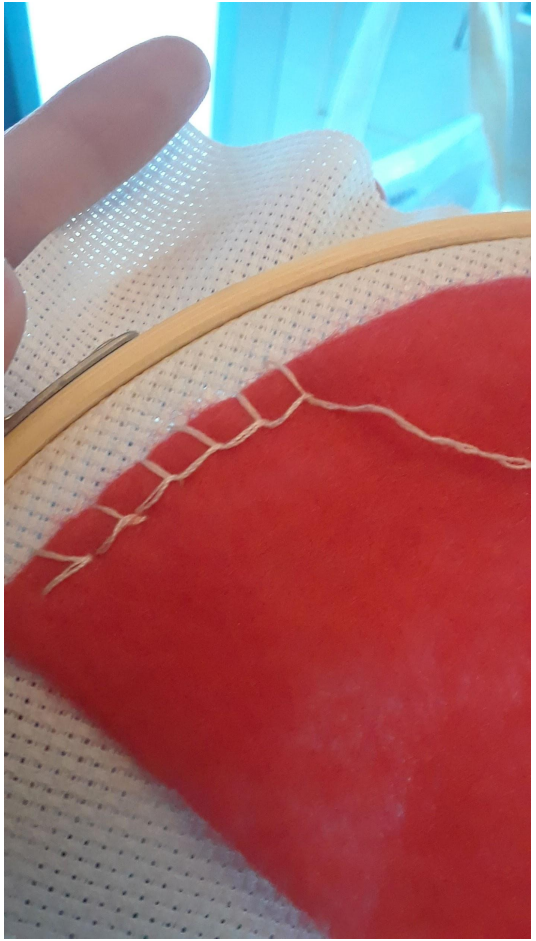


Construction

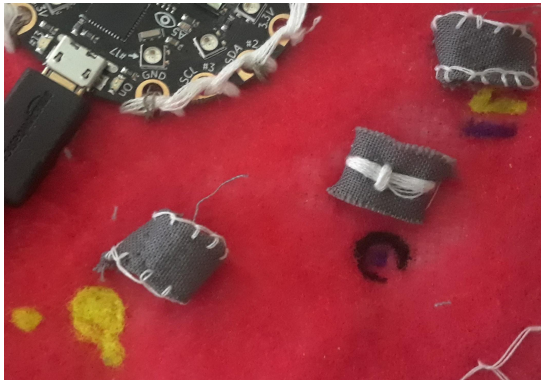
Sewing, felting, and assembling

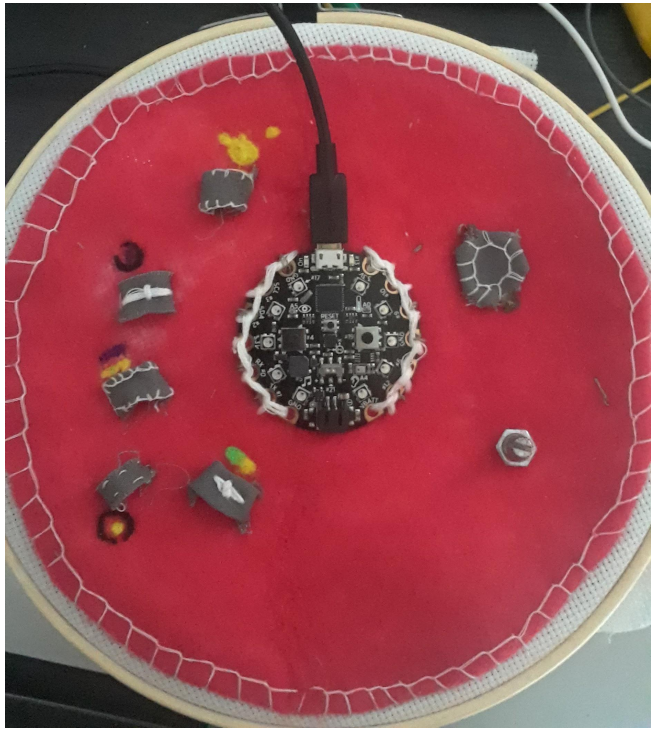


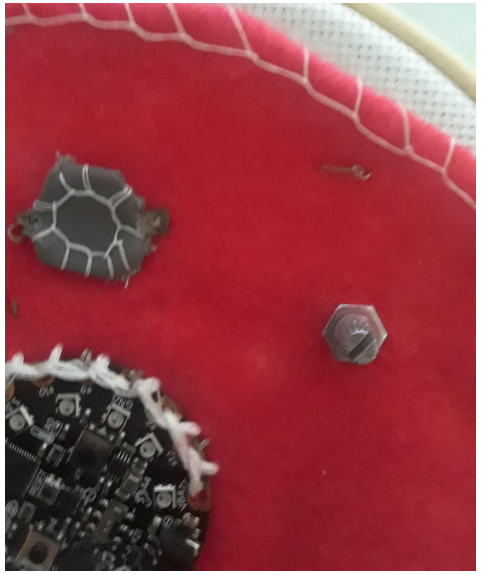




Final Results







Constructed final piece.