



PowerPlay Final Documentation

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Technologies Utilized

For PowerPlay, we utilized a few technologies to achieve our goals.

For ideation, we used Miro, a live collaborative white board. We mapped out our storyline, datapoints from the user, and architecture with synchronously.

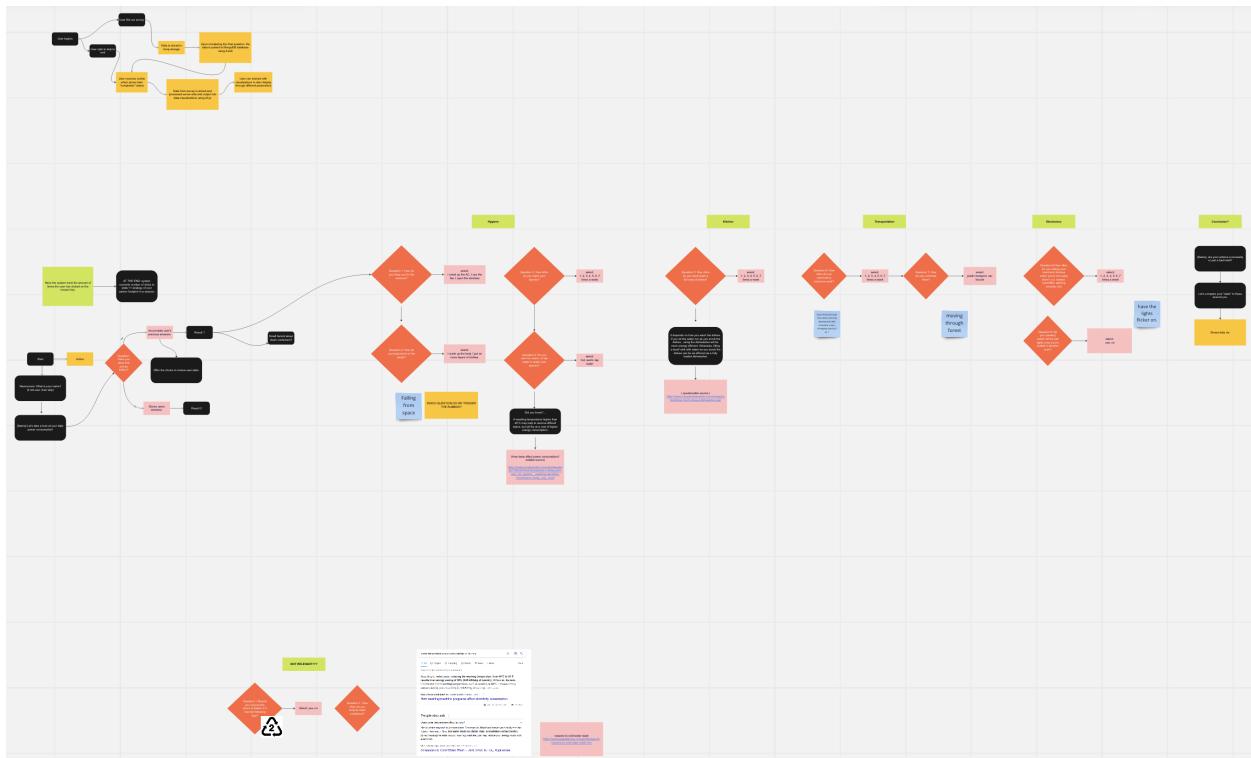


Fig 1. Our Miro board

Starting with the frontend, we used [Rellax.js](#), a vanilla javascript library which enables simple implementation of the parallax visual effect, the displacement of different elements on the screen at different speeds creating the effect of depth, when in reality it is just 2D space. We leveraged this library to create a more compelling visual experience for our website.

[Figma](#) was our design hub, which we used to collaborate live in creating our moodboards, and design mockups, which we exported directly as PNGs for the full website.

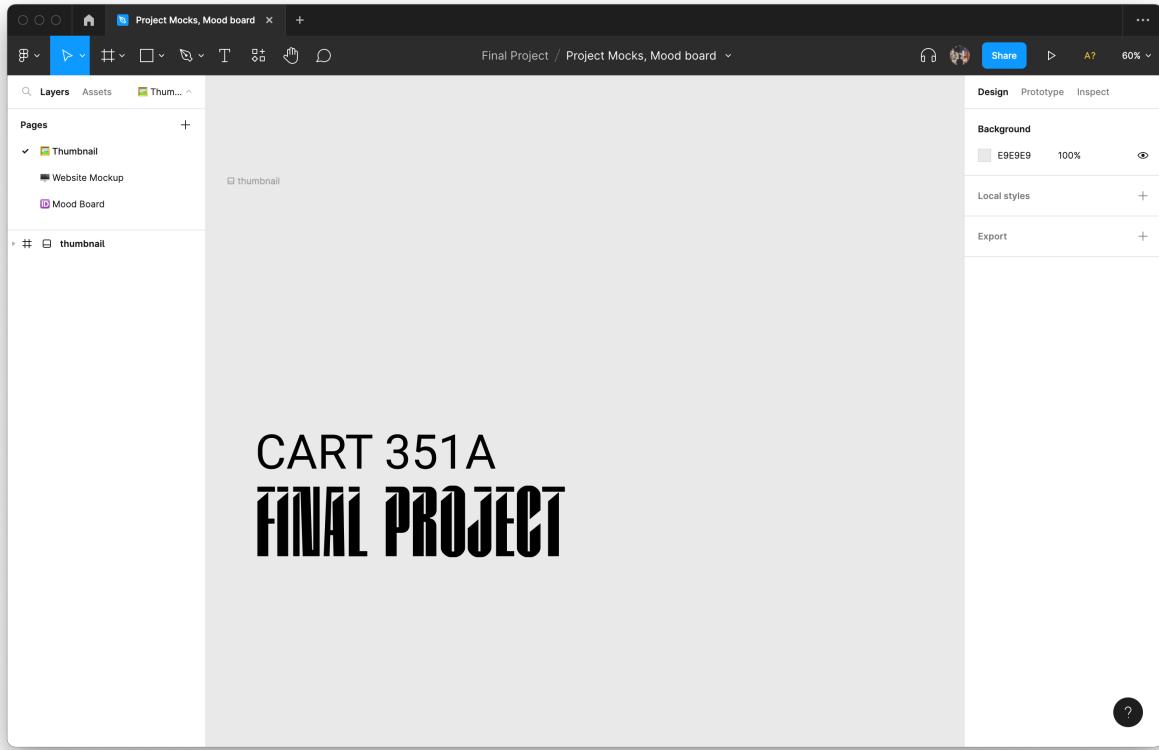


Fig 2. Figma Hub

Alongside that, [Bootstrap](#) was used to design the layout of our site and keep things centered, as Rellax.js was very unresponsive to screen size, looking wildly different depending on view port, the framework Bootstrap provided served as a solid base for our website with its robust grid system.

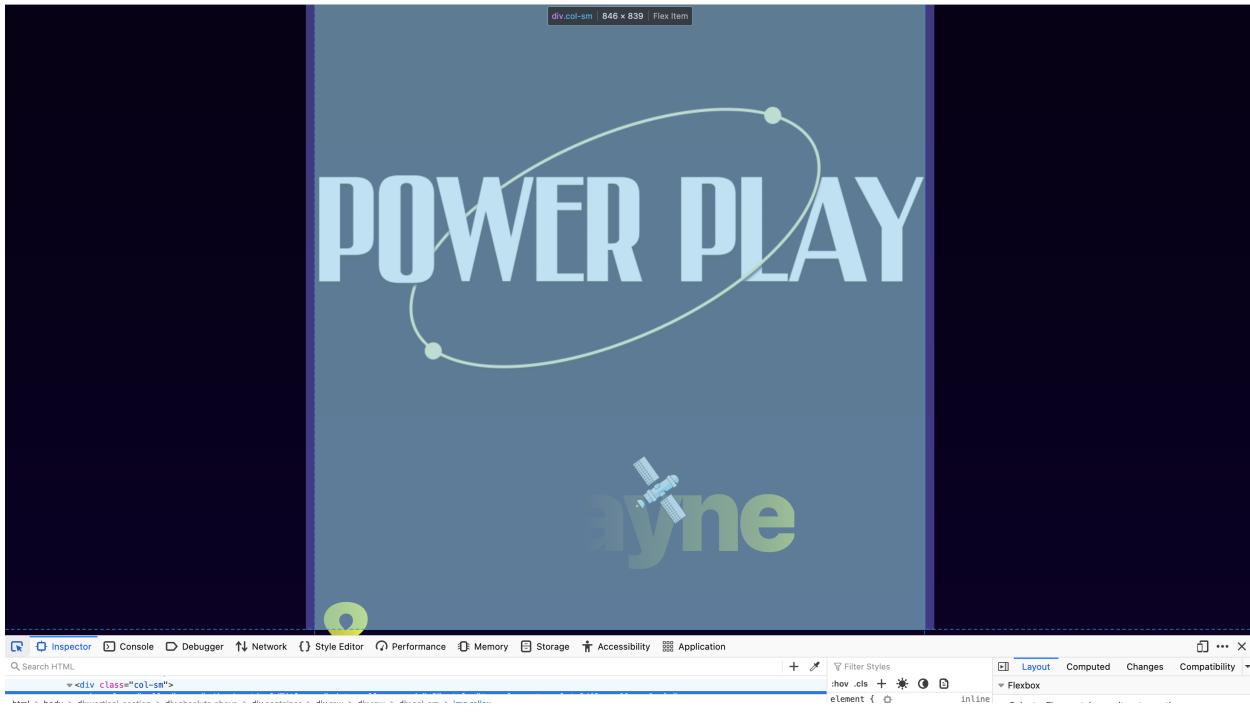


Fig 3. The primary layout of the website, using Bootstrap's Grid system

To help control these various elements we had, jQuery was our toolkit of choice for helping us build the flow of the website. Controlling the scroll height trigger points to show and hide questions, statements, and storytelling prompts, as well as seamlessly create the appearance of transitioning from vertical to horizontal scrolling.

```

$(window).on("load", function () {
  $('#question24').hide();
});

$(window).scroll(function() {
  if ($(this).scrollTop() > 95400 && $(this).scrollTop() < 100000) {
    $('#question24').fadeIn();
  } else {
    $('#question24').fadeOut();
  }
});

```

For our backend stack, we used PHP and MySQL. To maintain development environments, we utilized MAMP, which managed our installations of Apache, Nginx, PHP & MySQL. With this, we managed our MySQL database through phpMyAdmin.

```
$sql = "INSERT INTO powerplay (name, age, ac, heat, laundrycount, laundrytemp, dishescount, lights) VALUES ('$name', '$age', '$ac', '$heat'
```

The screenshot shows the phpMyAdmin interface for a MySQL database named 'powerplay'. The current table is 'submissions'. The 'Table structure' tab is selected, displaying 12 columns: id, name, age, ac, heat, laundrycount, laundrytemp, dishes, lights, electronics, commutecount, and commutemode. The 'Indexes' tab is also visible, showing one index named 'id' with type BTREE, unique status, and no packing. The 'Partitions' tab indicates 'No partitioning defined!'. The left sidebar shows the database schema with 'submissions' highlighted.

Fig 4. Screenshot of our phpMyAdmin dashboard

In the middle ground of front and back end, D3.js was our engine for ingesting and displaying data from submissions. With it, we were able to render out scatter plots at the end of our experience. This is useful to the experience as a finale, to show to the user where they lie compared to others who have completed the experience.

Implemented Features, Missed Opportunities

Working Features:

With the help of our chosen tech stack, we were able to successfully implement an aesthetically pleasing visual story. The parallax effect added a layers (literally) to the experience to create a deeper (literally) story, with small details that revealed themselves as the user engages with the experience.



Fig 5. A snippet of the landing sequence on Earth

JQuery fading in and out the prompts elegantly at the right moment were a feature which was integral to the experience, as users experience the visual storyline they are met with questions and statements which add further depth to what the visuals are already saying to the user, as well as provide data for the end of the sequence.

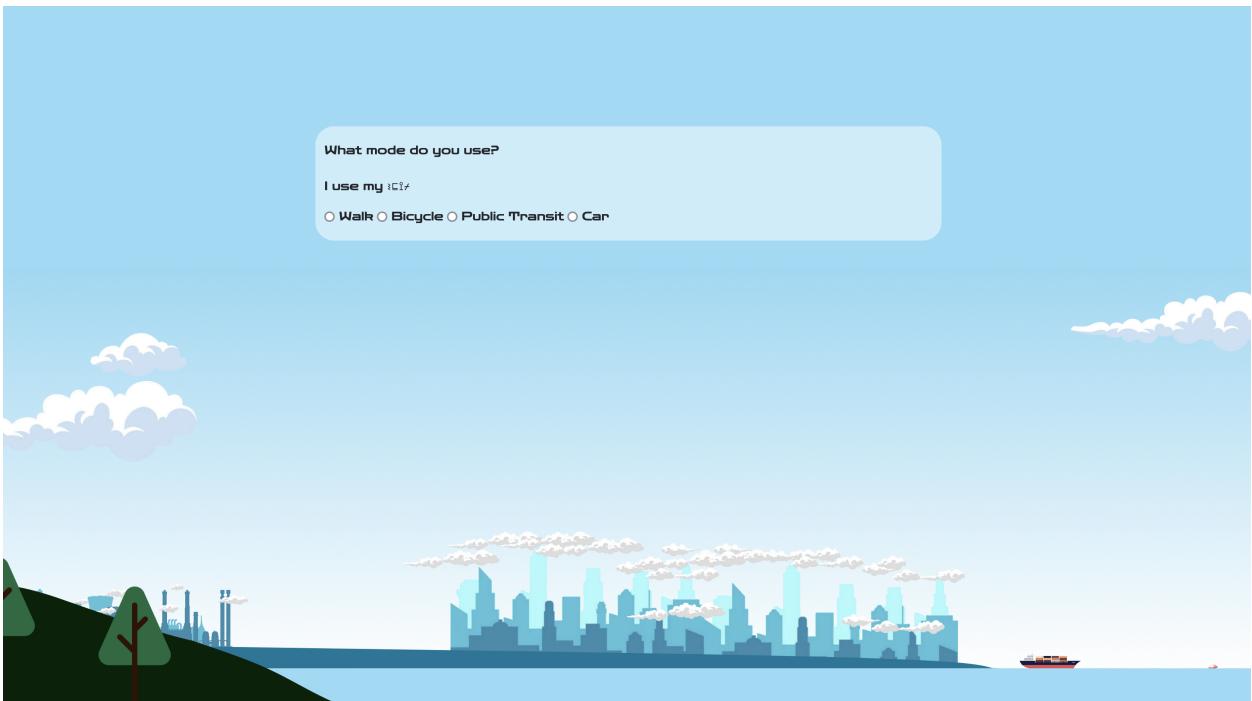


Fig 6. A prompt after being faded in by JQuery

A feature we are proud of is the use of a narrator, an alien, to speak to the user as a spectator to humanity and themselves.

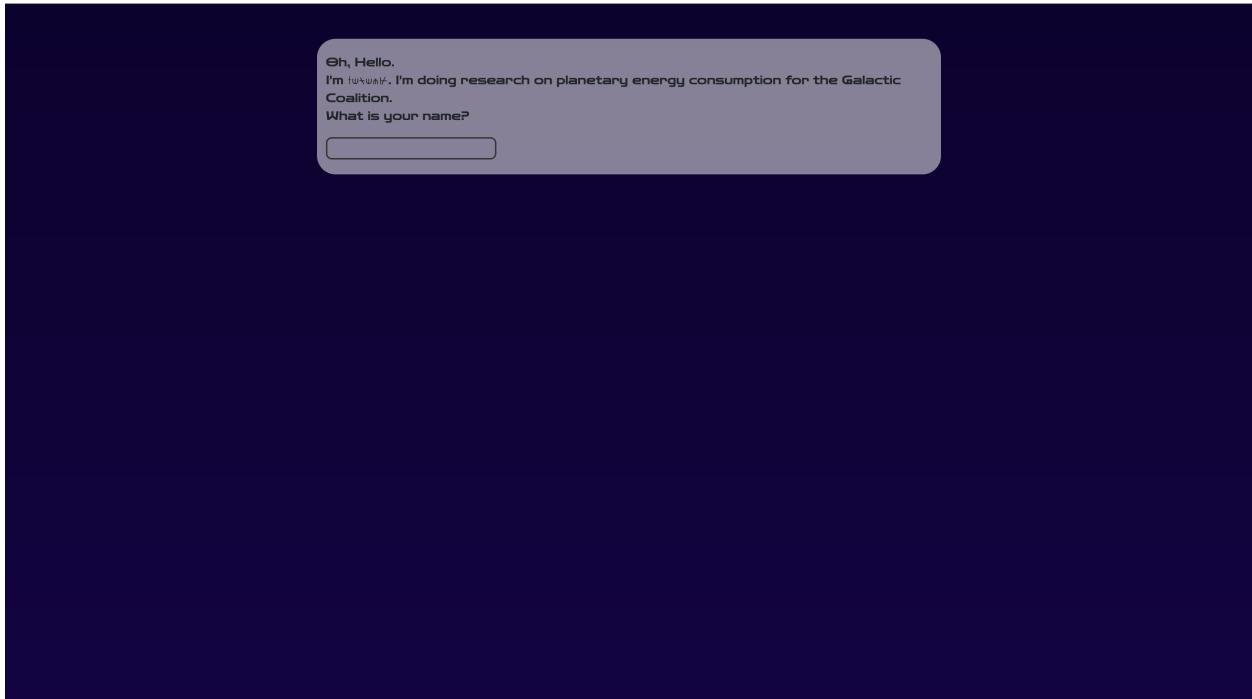


Fig 7. Introductory question by the narrator

Missed Opportunities:

At the end of the experience after submitting their answers, the user is greeted with a data visualization in D3.js of the cumulative responses from all previous users and themselves through JQuery

```
$(document).ready(function(){
  $(".button-submit").click(function() {
    $("#vis1").fadeIn("slow");
    $("#submissionform").remove();
  });
});
```

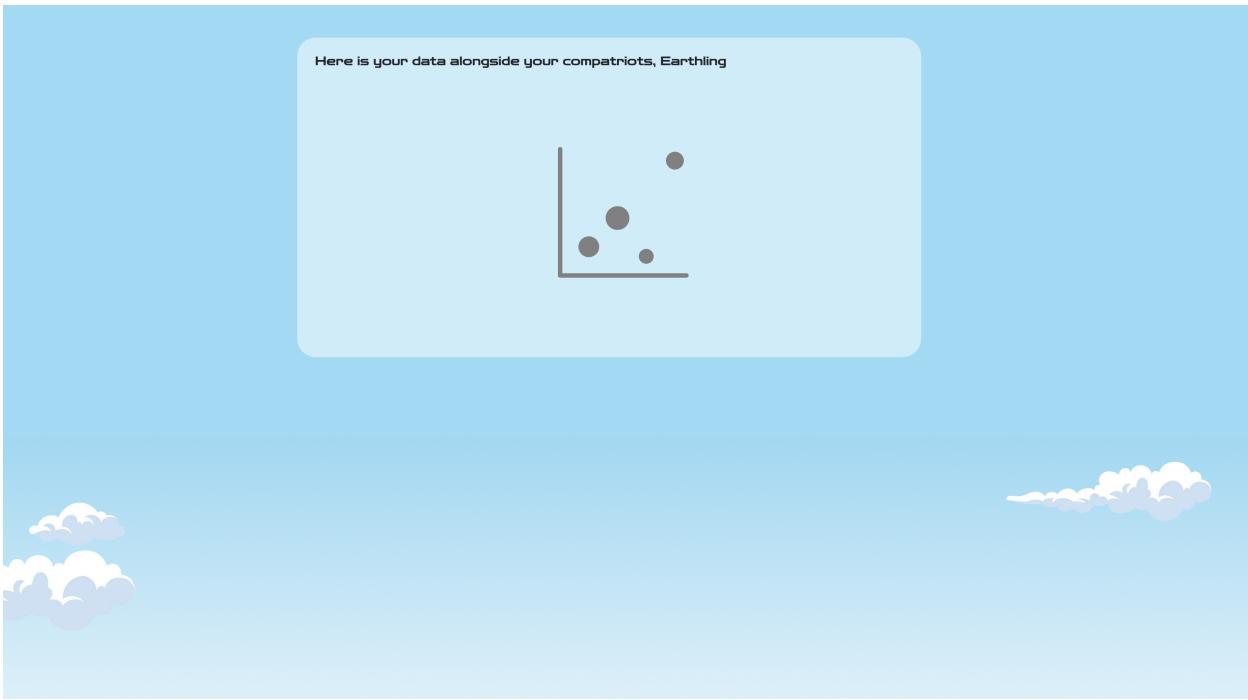


Fig 8. D3.js Data Visualization using dummy data

This was a missed opportunity because due to technical failures the developer (Shayne) failed to successfully implement the posting of the data to the backend infrastructure and thus the subsequent getting and display in D3.

Hindsight:

Speaking from the first person; in hindsight I (Shayne) wish I had taken more time to research the tech stack we decided upon. Valuable development time was wasted attempting to bend very a singular use-case, non-responsive library (Rellax.js) to work in ways it was not meant to do, and ended up running out of time and mental bandwidth to implement the true meat of the project (*Especially* in the context of this class), so to speak.

If I were to re-do this project in the future, I would avoid the use of PHP and choose a Node.js, AJAX, MongoDB backend implementation, as it is much more flexible for less experienced backend developers such as myself and plays nicely with D3.js's native AJAX functions, for easy pulling of data for visualization.

How our work implements and does not implement the intended concept

Our work successfully implements the concept of an interactive story - the user is taken on a journey where they are asked questions about their power consumption habits, coupled with an elaborate visual story which enhances the experience. Where it fails to implement is in the end, where there is supposed to see an implementation of D3.js displaying all cumulative user responses over time, and have the ability to see various data displays.

As such, the experience is weakest in final stretch where there is a large build up to little payoff.

Future considerations for this project would be refinement of the data acquiring, storing, and communication.

Video Demo

<https://drive.google.com/file/d/1QRtBBuBhB-OXJOTLef9fKklu86eZuxVj/view?usp=sharing>