

Using sustainable Web Design Practices: Website Redesign for The ClimateMusic Project

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Abstract

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Sustainable practices go beyond reducing, reusing, and recycling in the physical world. In the digital world, design has a high environmental impact, so the choices designers make can eat up electricity and raise their carbon footprint. Therefore, designing low-carbon sites through UX, imagery, and color, and using a sustainability host is very beneficial for both usability and the environment. The ClimateMusic Project is a non-profit organization that aims to raise climate change awareness through music. This organization seeks to reduce their carbon footprint as well as help raise awareness through their Take Action web page. For my senior project I will help them reach this goal by redesigning their website to be more sustainable and user friendly. This will also come with a branding guide to be used across all their platforms. I will also work to increase the activity on their Take Action page by redesigning it and creating an animated logo to generate brand awareness. To check the results, I plan to track the insights and activity on these pages as well as run the new website through an ecograder/ carbon emitter for websites.

3.

About Me

My name is Charlotte Saunders and I am graduating Cal Poly with a degree in Graphic Communication and a degree in Theatre arts. I am concentrating in User Experience User Interface. I am a student, a writer, a photographer, and I enjoy getting to create things for others--having gained many skills to do so at Cal Poly. I have a passion for sustainability and am excited to continue working on creating web projects for the nonprofit, The ClimateMusic Project.

IRB Statement

This project is not systematic investigations. It will not collect data from Cal Poly students or employees as subjects. It does not attempt to answer research questions. Therefore, this project does not need to be reviewed by the California Polytechnic State University Institutional Review Board.

Timeline

4.

Week1:

Research

Week2:

Branding Guidelines

Week3:

Logo Animation

Week4:

Carbon Test for original website

Week5:

Main Page Website Redesign

Week6:

Action page Website Redesign

Week7:

Carbon Test for new website

Week8:

Expert feedback and Adjustments

Week9:

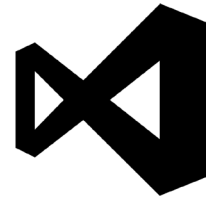
Final Presentation

Interest In Project

I interned for The ClimateMusic Project and eventually took a job working on many different projects for them: social media, web editing, creating graphics, posters, supplemental resources, etc. I thought this was a great opportunity to utilize my skills and resources for a much larger research project with design aspects.

5.

Tools Used



Background

The ClimateMusic Project is a nonprofit that aims to raise awareness of the climate crisis through a combination of climate science and the emotional power of music, in order to drive action. “Combining the talents and expertise of world class scientists, composers, musicians, artists, and technology visionaries, we enable the creation and staging of science-guided music and visual experiences to inspire people to engage actively on the issue of climate change” (The ClimateMusic Project).

Problem Statement

The ClimateMusic Project's website and branding are not of high quality and do not get very much interaction on their platforms. Some of the website's main problems include, low quality large images, non-response, too many fonts, loading issues, and not being as user friendly as it could be. One way to focus on this issue is by improving their website's Search Engine Optimization (SEO), to generate more web traffic, maximize conversions, and increase their exposure. They also desire their website to reflect their values on sustainability. A number of things can correlate between a sustainable website and good user experience, which ultimately leads to an improved website and increased interaction.

Problem Solution

To solve this problem, each platform will need a more cohesive branding applied, along with an update to the images, typography, and response time on the website. A logo animation will also be created and added to the media platforms, to further the goal of attracting more attention. In terms of the Take Action page, this will need to be easily seen from the main page. Implementing good user experience will make using the website easier and more enjoyable for the user and reduces the amount of energy wasted navigating to each page.

In this literature review I will be focusing on the concept and importance of sustainable web design, as well as how it applies directly to my senior project. According to Tom Greenwood (2021), "Sustainable web design is an approach to designing web services that prioritizes the health of our home planet. At its core is a focus on reducing carbon emissions and energy consumption." I will support this concept by discussing research on sustainable web design practices used today, ensuring quality user-interface and user-experience interactions, and how to check if you're a sustainable designer.

"A 2018 paper published in the Journal of Cleaner Production estimated that communication technology will use 14 percent of global electricity by 2040, up from just under 4 percent in 2020 (<http://bkaprt.com/swd/01-04/>)" (Greenwood, 2021). Most designers do not even realize the impact digital services have on the environment. "The internet may be digital, but it carries a very physical cost. From image files to colours to coding languages to servers, the choices we make in our web work can eat up electricity and spit out carbon – and as the internet grows, so does the cost to the environment" (Greenwood, 2021). There are many ways to go about creating a more ecofriendly website. Some important ways come from the Sustainable Manifesto, written by Greenwood and other designers, developers, and digital professionals. A few of the key principles include being clean, open, and regenerative. First, being clean refers to opting for a green hosting provider. Although this might not always be in your control, as a designer, searching for a website hosting that uses renewable energy will aid in a more sustainable website.

8.

This will be done for The Climatedmusic Project's website, as it is currently hosted on WordPress. There are currently many green purchasing platforms through WordPress, and several tactics such as utilizing fewer plugins to consume less energy. Next, being open is just as it sounds, talking about sustainable web making in communities and sharing knowledge. Greenpeace redesigned their website with open principles and a large global design team, "The result was a web platform that in their own words is not just 'a vehicle for putting content on the internet, but for driving people to action'" (Greenwood, 2021). This is a major goal for The Climatedmusic Project's website as well, to drive people to action. This leads into the regenerative principle, helping people and the planet heal. The Climatedmusic Project would like more traction on their Action Page, to drive action to help the planet. This aligns with their sustainable web goals as well.

Increasing usability, such as reducing the loading time and using a responsive site, can help increase both your user experience and website sustainability. A study done in 2018 on the usability of a website-towards sustainable web design, talked about "external characteristics that affect sensation and can impact UX and consumer perception of the website" (Țichindelean et al., 2021). The study goes on to list these aspects and how they directly relate to being sustainable. One example included, "the recommendation is not to use more than two different fonts to keep the design sustainable; always evaluate the loading time that each font needs" (Țichindelean et al., 2021). There are many ways to increase your website's visits while also reducing your impact on the environment. By ensuring high usability, such as increasing efficiency for the user, the website is also becoming more sustainable due to the reduction of energy used (Țichindelean et al., 2021).

9.

According to Wiedmann and Minx (2008), “the carbon footprint is a measure of exclusive total amount of carbon dioxide emissions that is directly and indirectly caused by an activity or is accumulated over the life stages of a product”. This is an important calculation to analyze how many emissions your website is releasing. The ClimateMusic Project not only aims to lower their own emissions, but to encourage others to lower theirs as well. In a study done by Md Nor and Abu Bakar in 2018 on the effects of carbon footprint calculators using sustainable web design, their findings showed that displaying a carbon footprint calculator did affect the usability of the participants, “eighteen participants strongly agree and twelve participants agree that Paddy Footprint web application encourage people to be more aware on carbon footprint” (Md Nor, & Abu Bakar, N. F. F., 2018). Therefore, if someone were to visit a website that had a carbon footprint calculator, they can make the decision to interact with it or not, and will also be enhancing their knowledge on carbon footprint effects.

In conclusion, as the number of websites connected to the internet grow rapidly, the environmental concern grows as well. The ClimateMusic Project’s website redesign will take on a more sustainable approach, by supporting green platforms and organizations, prioritizing reducing its carbon footprint, educating those who interact with it, and encouraging action through clean design.

Web Design Process

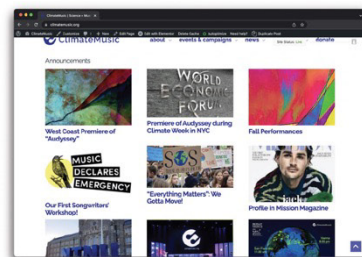
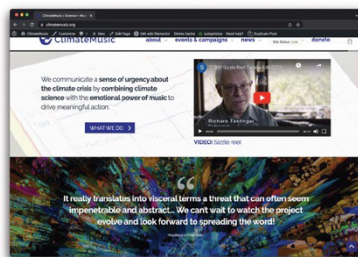
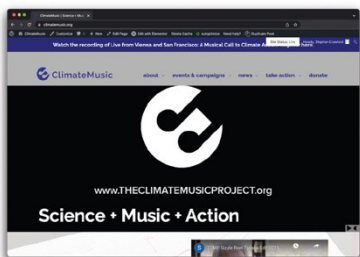
10.

For the initial website, there are many things that contribute to making this an unsustainable website. The main components that were worked on was reducing image size and keeping them as minimal as possibly without compromising user experience, switching to a modern web-based font, such as VERDANA, and subset fonts to only include the characters needed on the website, and reducing white spacing and embracing dark mode. The website needed to increase the user's interaction as well, so carousels and buttons for images and text were implemented instead of a simple display. This also allows for more room on one page and decreases the load time multiple pages would need.

On the back end, this website runs on WordPress and was originally hosted on Bluehost, which offers a lot. However, there are many more sustainable options through or not through WordPress. WHOLEGRAINDigital is a sustainable web design agency that strives for sustainability, implementing the research done by Tom Greenwood. This web host in the ultimate goal for this website in order to reduce its footprint. However, GreenGeeks, a highly recommended sustainable web host, was chosen as the temporary web host as it is a cheaper option and accessible through WordPress. More on the back end, the plugins were reduced to minimize the server load and the code was cleaned to reduce duplicate images and pages.

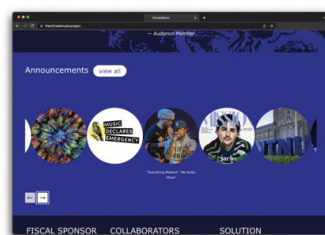
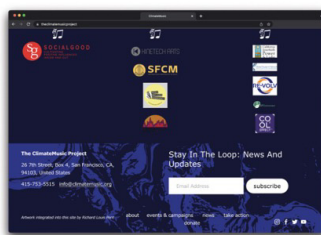
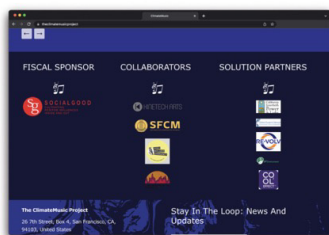
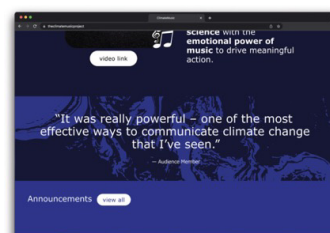
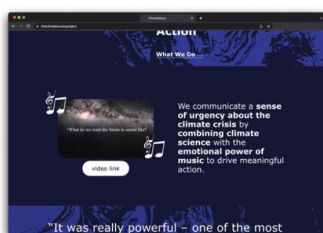
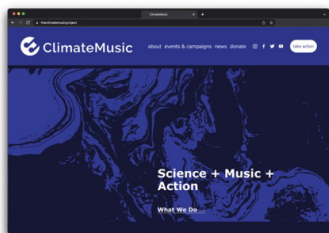
11.

Old Website Design



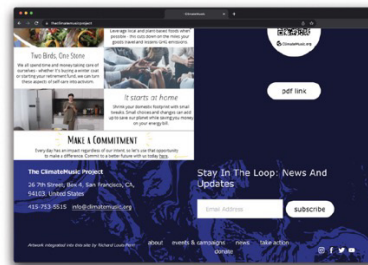
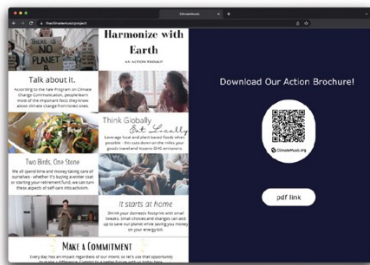
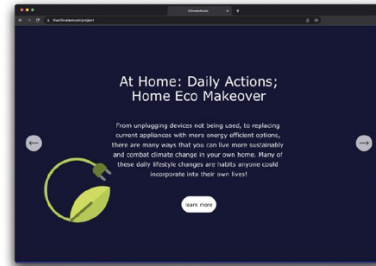
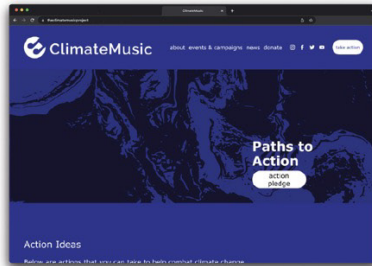
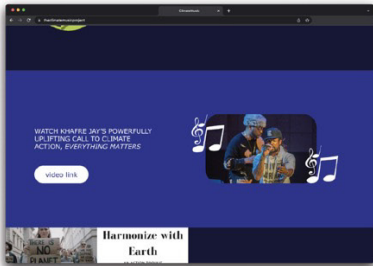
New Website Design

Main Page

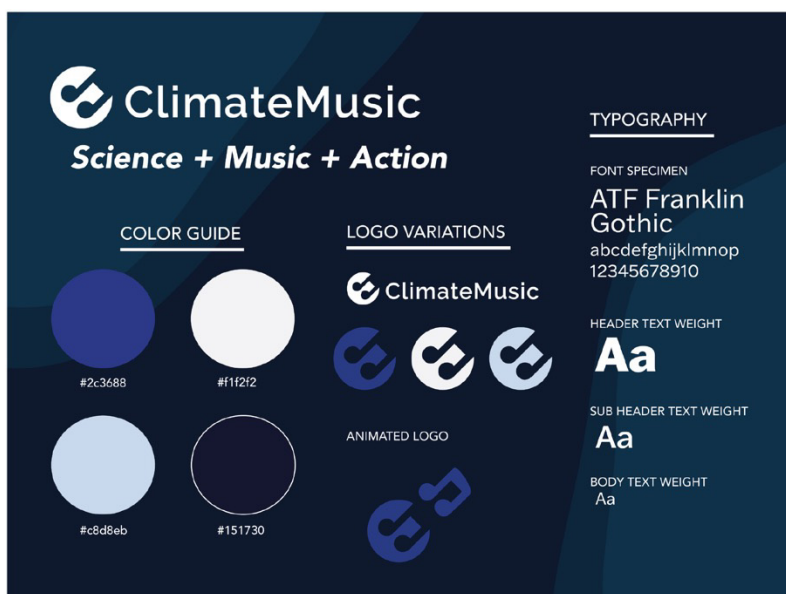


New Website Design 12.

Action Page




Guidelines and Logo




Calculator Results

Old Website Design Results




Uh oh! This web page is dirtier than **68%** of web pages tested

[1]




Oh my, **0.78g of CO2** is produced every time someone visits this web page.



Oh no, it looks like this web page uses **bog standard energy**

[1]

Ecograder




OVERALL SCORE
This page scores 50 out of a possible 100 points.

Heads, with 100 possible points to earn, you could stand to improve this page. Ecograder prioritizes a holistic approach to digital sustainability reporting. Each report includes quantifiable metrics to help you reduce emissions and improve performance. We also share best-in-class web design practices that aren't as easy to quantify from an ecological perspective. Read on to learn specific action items you can take to improve this page and your website overall.

[Share your score](#)


[2]

New Website Design Results




Hurrah! This web page is cleaner than **86%** of web pages tested

[1]




Only **0.14g of CO2** is produced every time someone visits this web page.



This web page appears to be running on **sustainable energy**

[1]

Ecograder



OVERALL SCORE
This page scores 87 out of a possible 100 points.

Heads, with 100 possible points to earn, you could stand to improve this page. Ecograder prioritizes a holistic approach to digital sustainability reporting. Each report includes quantifiable metrics to help you reduce emissions and improve performance. We also share best-in-class web design practices that aren't as easy to quantify from an ecological perspective. Read on to learn specific action items you can take to improve this page and your website overall.

[Share your score](#)

[2]

I was very glad I got to work on this project for The ClimateMusic Project, as I have been working for them for quite a while. I learned a lot through my research on sustainable web design, mainly from Tom Greenwood's book on sustainable web practices. This project successfully showed me that sustainability is everywhere, and everyone can do their part in any field that they work in. There are carbon footprints to be reduced everywhere. I have enjoyed translating this nonprofit's core values of sustainability into visual elements that only further establishes and solidifies them for who they are.

One of my main goals for this project was to get better results on the carbon calculator as the original website, and to research as much about a sustainable website as I could. Even though this goal was achieved, due to the time constraints of this project, for this future I would like to expand this design to the rest of the nonprofit's platforms. I would also like to conduct more insight tests and surveys on the results of the interaction aspect, as the nonprofit was very adamant on drawing people to their Action Page. Overall, this project has granted me a lot of experience in creating a platform that had good user experience and reduced energy consumption.

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[1] <https://www.websitecarbon.com/>

[2] <https://ecograder.com/>