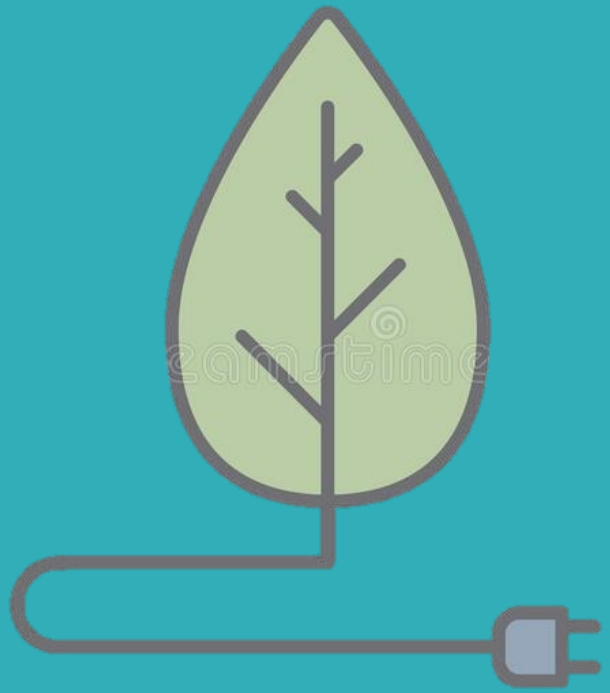

Is your web design sustainable? Empirical evaluation of university website top 50 UI GreenMetric rankings

Presented by
Dimas Sasongko
Universitas Muhammadiyah Magelang
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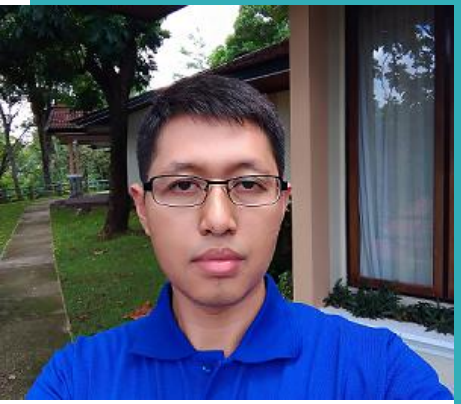
Authors



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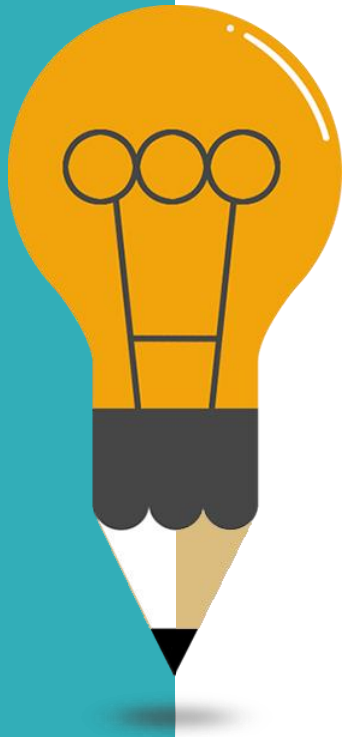
Presentation Outline



01 Introduction

02 Methodology

03 Experimental Details

04 Results and Analysis

05 Conclusion

Introduction

Background

Internet technology has developed rapidly in recent years. User access to internet technology services such as social media, websites, and mobile applications causes an **increase in power consumption**. While the Internet currently produces **around 3.8% of global carbon emissions**, that number will continue to increase as users access more data. **Sustainable web design** is an approach to designing website interfaces that prioritize **the health and sustainability** of the planet we live on, focusing on energy consumption and **reducing carbon emissions**.

Introduction

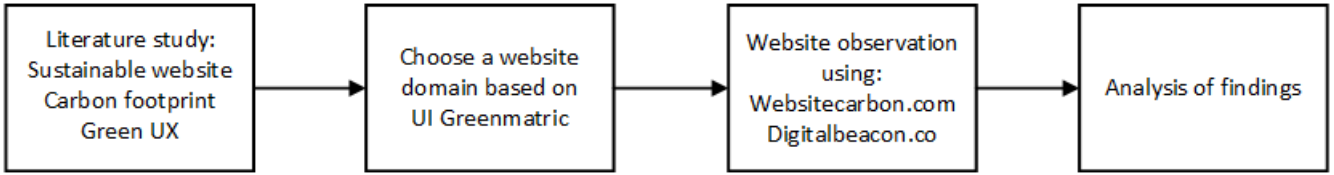
Research Purpose

This study aims to determine the amount of carbon footprint generated by the university website when accessed by users and know the website's rating based on the carbon footprint generated.

Related Works

Tahun	Judul	Review
2021	Web Communication: A Content Analysis of Green Hosting Companies	This paper investigates, through a qualitative content analysis, 391 websites that support and provide green hosting services. This study is considered the first in the field that aims to examine in-depth how these green websites tend to communicate their green services
2018	CO2 Emission Estimation from Transportation Usage and Cyclingconsideration in the Context of Green Campus, Naresuan University, Thailand	This study aim to find out how much the transportation usage especially motorbike sub-sector release CO2 emission
2018	Carbon Footprint Calculator for Paddy Production using Sustainable Web Design	This research investigates the usability of the web application to increase the level of awareness towards carbon emission during paddy production. A web application called Paddy Footprint is developed by using two sustainable web design principles which are more sustainable component and user experience and design.

Methodology



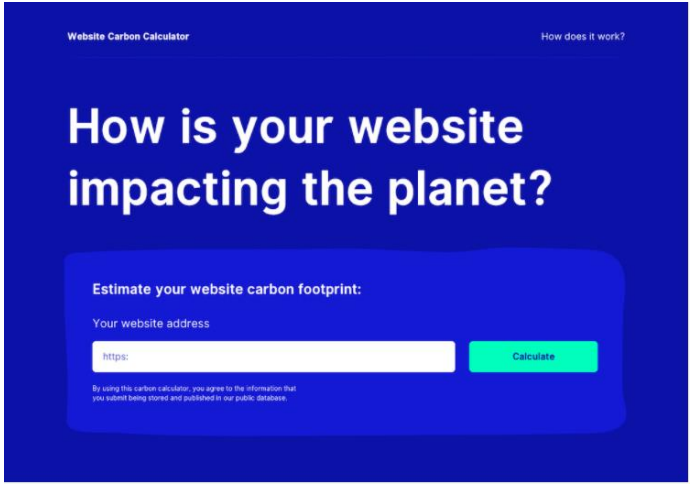
The research method begins with the research stages, as shown in Fig. The research starts with a **literature study** on sustainable web design, carbon footprint, and Green UX. Next, the website domain is selected to be used as material, and this study will use the university website domain, which is ranked in the **top 50 of the UI Greenmetric** version. The next stage is to observe the website using the **websitecarbon.com** and **digitalbeacon.co** tools. The last step is to analyze the mapping findings. The analysis results are expected to provide recommendations for reducing carbon emissions.

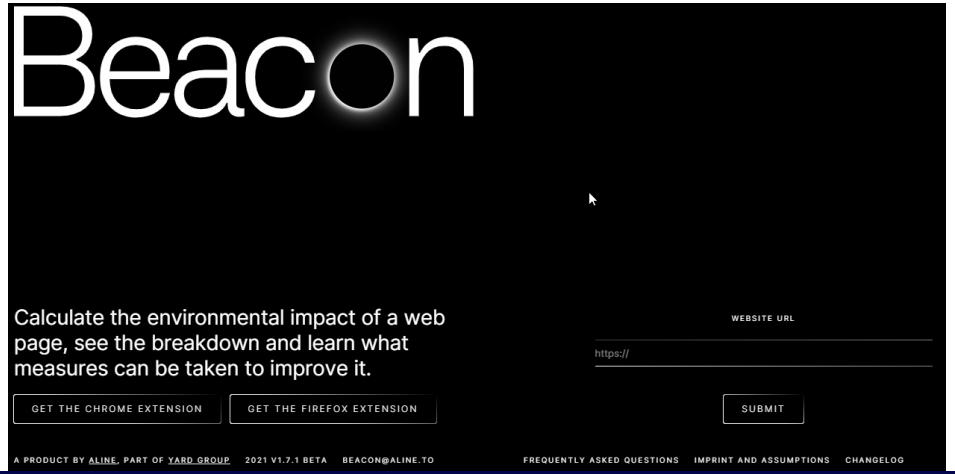
Top 50 UI Greenmetric Rankings (https://greenmetric.ui.ac.id/rankings/overall-rankings-2020)

Wageningen University & Research	Universitas Indonesia
University of Oxford	Universiti Putra Malaysia
University of Nottingham	University of Warwick
Nottingham Trent University	Universidade Federal de Lavras – UFLA
University of California, Davis	National Pingtung Univ of Science & Tech
Umwelt-Campus Birkenfeld	Universiti Malaya
University of Groningen	University of Eastern Finland
Leiden University	Universidad del Rosario
University College Cork	Hame University of Applied Sciences
Universita di Bologna	King Abdulaziz University
University of Connecticut	Keele University
University of Southern Denmark	Shinshu University
Universidade de Sao Paulo USP	Diponegoro University
Université de Sherbrooke	Universita degli Studi dell'Aquila
Dublin City University	National Chi Nan University
Universitat Autònoma de Barcelona	RUDN University
University of Limerick	Luiss University
Universidad Autónoma De Nuevo León	Universitas Gadjah Mada
Universitat Bremen	Universidad Autónoma De Occidente
Leuphana Universitat Luneburg	Delft University of Technology Tu Delft
Universita degli Studi di Torino	Da-Yeh University
University of North Carolina Chapel Hill	National Cheng Kung University
Universidad De Alcala	IPB University
Politecnico di Torino	Fundación Universidad del Norte Barranquilla
Freie Universitat Berlin	Lincoln University

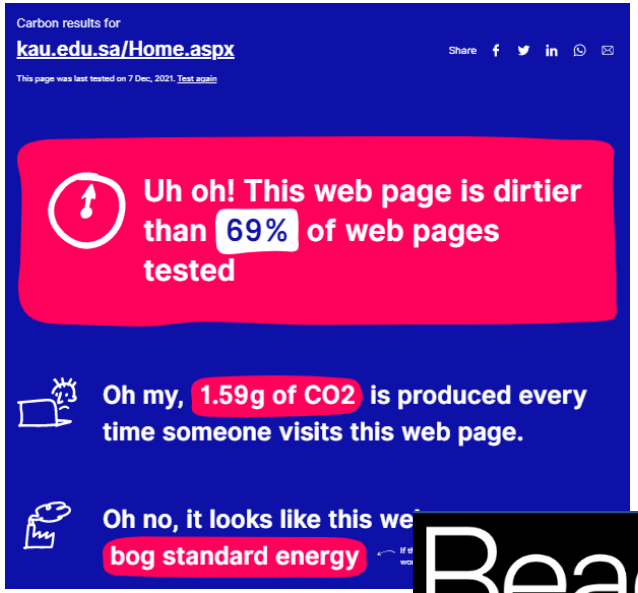
Experimental Detail

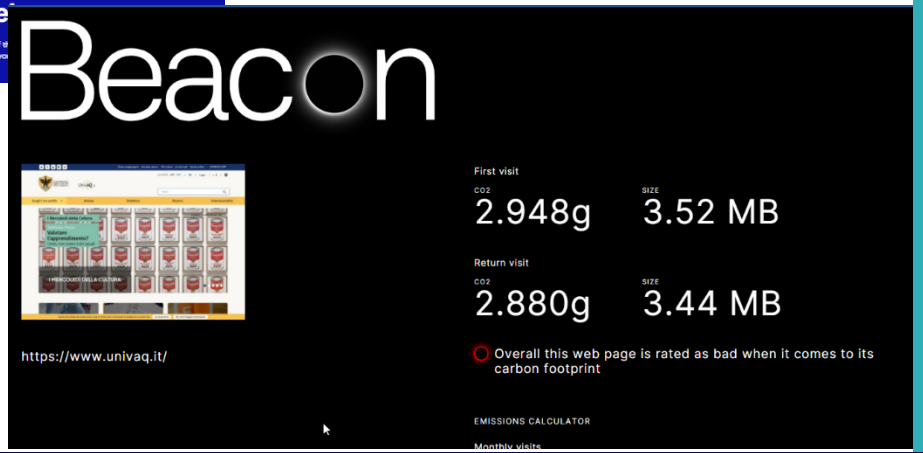
Experimental Detail



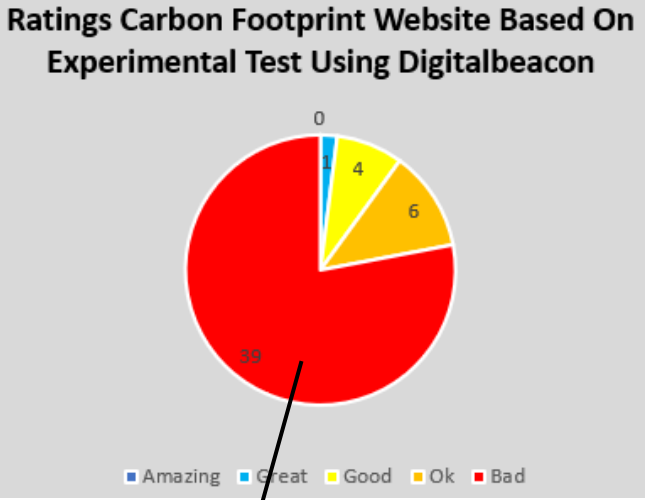


Results and Analysis

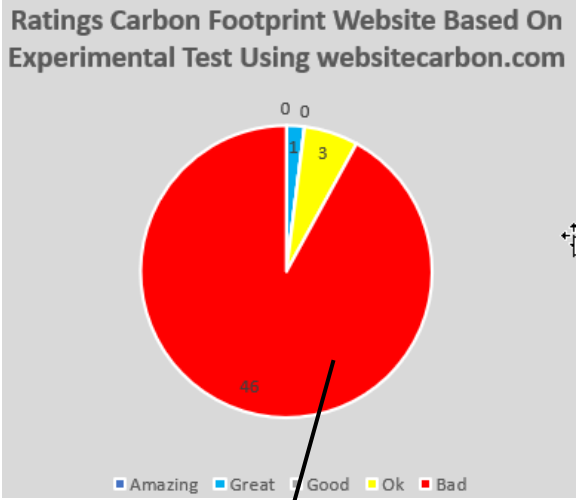




Results and Analysis



78% Bad Ratings



92% Bad Ratings

Results and Analysis

"On average more than 71% of the size of web content is images."

Image Size Analysis

Central Tendency	Size
Mean	5.20 MB
Median	4.80 MB
Mode	3.52 MB
Maximum	17.16 MB
Minimum	0.52 MB

Conclusion

1. More than 70% of websites tested have Bad quality because they produce a carbon footprint of more than 1.5g when accessed by users.
2. Images are the type of web content with the largest size. On average more than 71% of the size of web content is images.

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Thank you

http://sasongko.azurewebsites.net/resume/