P4A Solar mini-grid: Socioeconomic Impact – Developer Documentation

Contents

Project Description 1

Website diagram 2

- Home/Homepage 2
- Team 2
- Data Analysis 2

Architecture Description 2

Hosting recommendations 2

Application installation 3

Partner statement 3

Installation walkthrough 3

Screenshots 3

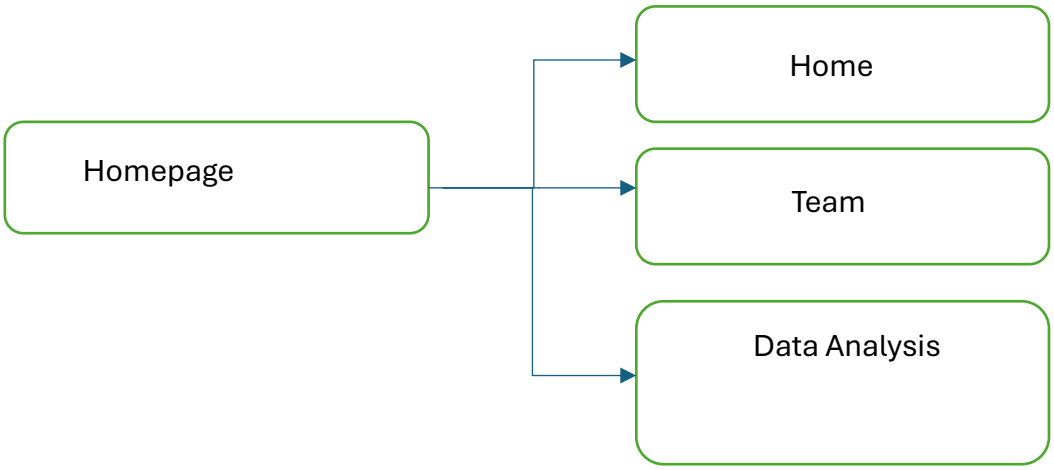
Lighthouse scores/Form Factors 5

Project Description

This project's deliverable is a report of our detailed and in-depth analysis on the socioeconomic impact the install and use of solar mini-grids in rural Africa, concentrating on common issues, the different outcomes between Kenya and Nigeria, especially concerning income, education, and healthcare access.

We have created a simple website to present our findings, presentation and team, but this is not the scope of the project, only a tool to display our findings.

Website diagram



Home/Homepage

The Homepage will display the name of the project, a short description, a video presentation, the team and lighthouse score, with a navigation bar up top.

Team

This page displays the team members, the titles and the contribution to this project, as well as a navigation bar to go to the different pages.

Data Analysis

This page shows a description and a link to the original paper, and an invitation to complete our survey. Scrolling down you can see images with different charts, tables and interpretation of the data that the team created.

Architecture Description

For the website, we used a simple webpage template that we expanded on, but adding and modifying the structure and items as needed. The languages used are JavaScript, CSS and HTML. All the files are in one folder, except for the .github workflows. There was no need for a database, the media files were added directly into the main folder, as well as the .pdf for the initial paper. There was also no need to implement authentication, nor authorization.

For our analysis, we used Excel and word frequency tools, to extract, organize, map and chart the data.

Hosting recommendations

- Github – free account
- Azure – free account

Application installation

You can create a free github account, create a repository and add all the files from the .zip file we provided. Then, create a free Azure account, create your environment, select “Static Web App” and click on create following the instructions. The only field you must change is to point to the environment you created previously. Next step is to connect your newly created app to your github repository and deploy. It will take a few minutes to an hour for it to properly display. At this point, a random link will be created for you, and you can share it with anyone; the website will be available to view to anyone. There is no need for any type of database, authentication or authorization.

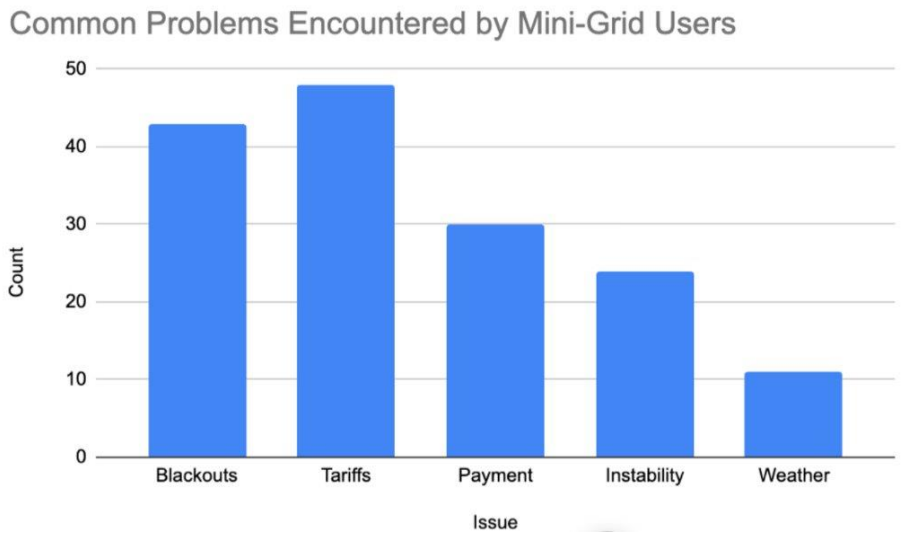
Partner statement

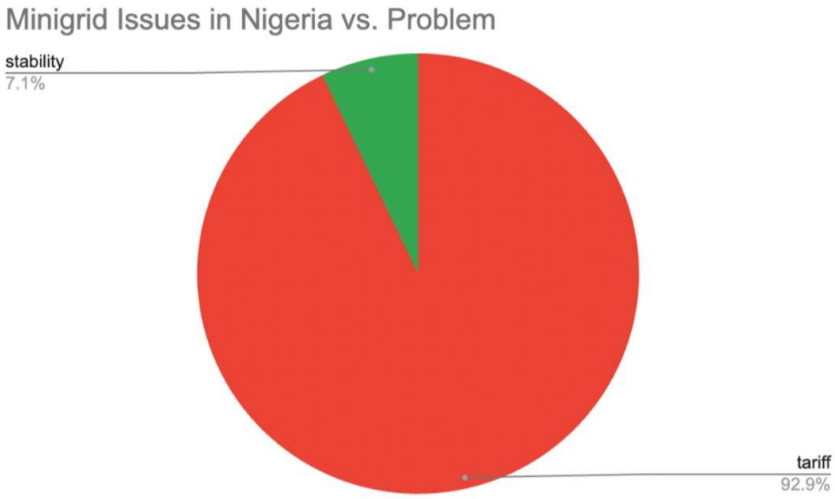
Seeing that the actual deliverable is a report, in our case we will send over the report. We have a meeting set up for next week, when we will also offer the website if they would like to use it.

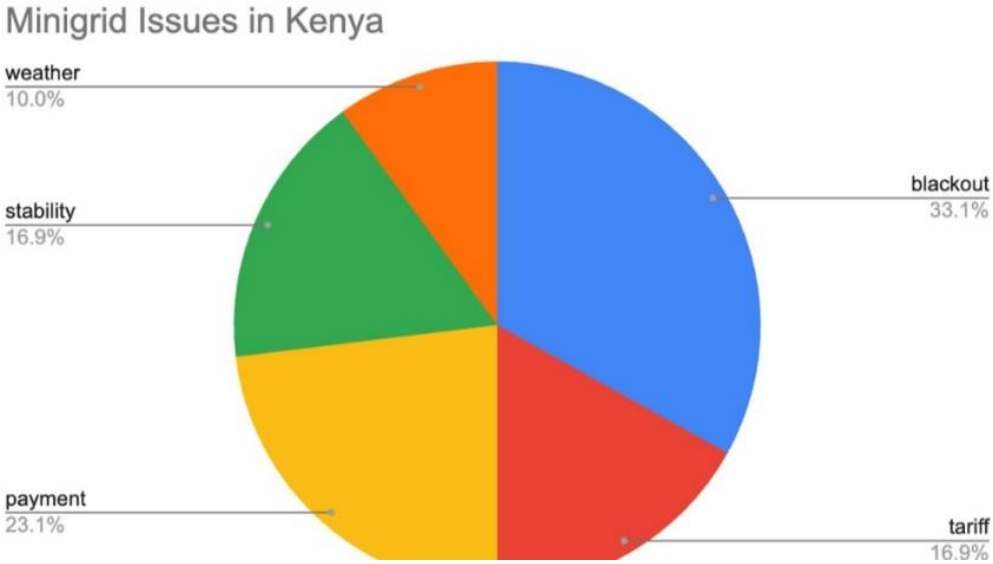
Installation walkthrough

As the previous section stated, our meeting is set up for the following week, and we will offer the website and installation as well, but it’s not the scope of the project.

Screenshots



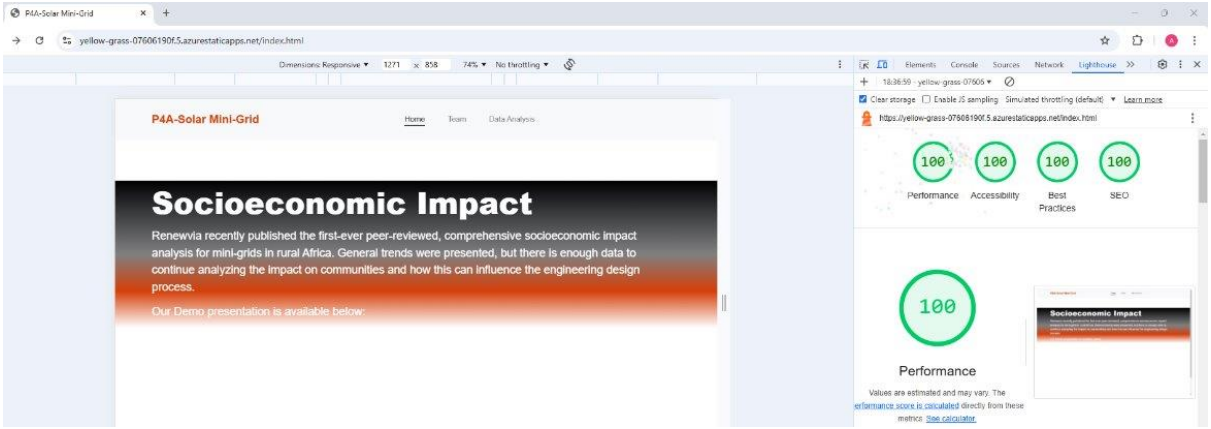

Minigrid Issues in Nigeria vs. Problem
stability
7.1%
tariff
92.9%


Minigrid Issues in Kenya
weather
10.0%
stability
16.9%
payment
23.1%
blackout
33.1%
tariff
16.9%

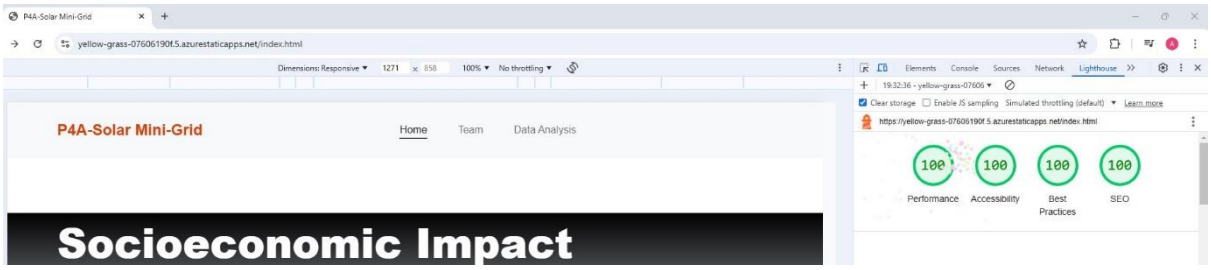
	Community	Income Increase	Girl School Increase	Boy School Increase	School Performance Improvement	Better Health Access	# of people
Nigeria	Awka Ibom	38%	7%	6%	32%	98%	207
	Bayelsa 2	2%	4%	9%	30%	96%	187
	Cross River 1	7%	2%	4%	19%	98%	103
	Cross River 2	21%	4%	5%	20%	94%	142
	Cross River 3	15%	3%	4%	27%	99%	93
	Cross River 4	10%	5%	7%	22%	89%	99
	Rivers	18%	1%	1%	24%	75%	116
Kenya	Homa Bay	15%	8%	4%	24%	69%	120
	Marsabit	12%	43%	44%	83%	99%	82
	Siaya 1	9%	2%	3%	15%	34%	192
	Siaya 2	17%	4%	8%	27%	21%	131
	Turkana 1	10%	17%	22%	7%	90%	174
	Turkana 2	74%	28%	26%	77%	32%	65
	Turkana 3	56%	53%	44%	78%	91%	32
	Turkana 4	9%	23%	27%	60%	100%	111
	Turkana 5	75%	30%	29%	77%	99%	69
	Turkana 6	23%	45%	49%	61%	86%	84
	Turkana 7	18%	15%	18%	75%	100%	40
	Turkana 8	65%	26%	24%	91%	98%	46
	Turkana 9	29%	54%	54%	68%	91%	108
Overall total # of people in each category		465	318	345	810	1782	
Overall % for that metric across ALL communities (^ marginal distribution)		21%	14%	16%	37%	81%	

Lighthouse scores/Form Factors

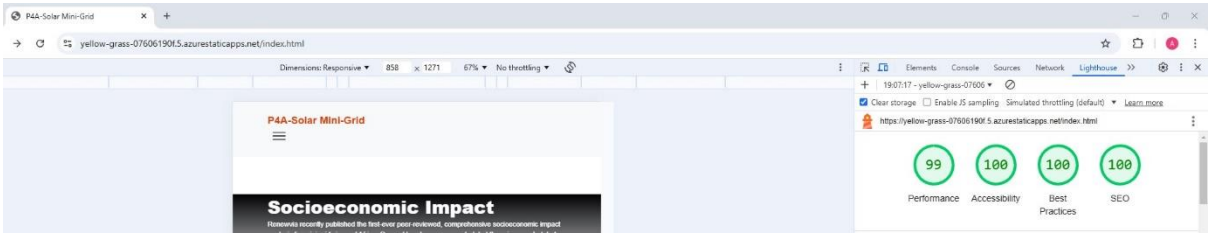
Lighthouse Desktop: 100/100/100/100



Lighthouse Mobile Landscape: 100/100/100/100



Lighthouse Mobile Portrait: 99/100/100/100



IOS screenshots