

HIKARI

by

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POWER SHORTAGE AS A LIMITING FACTOR TO SUCCESSFULLY RUNNING SMALL BUSINESSES IN LAGOS NIGERIA



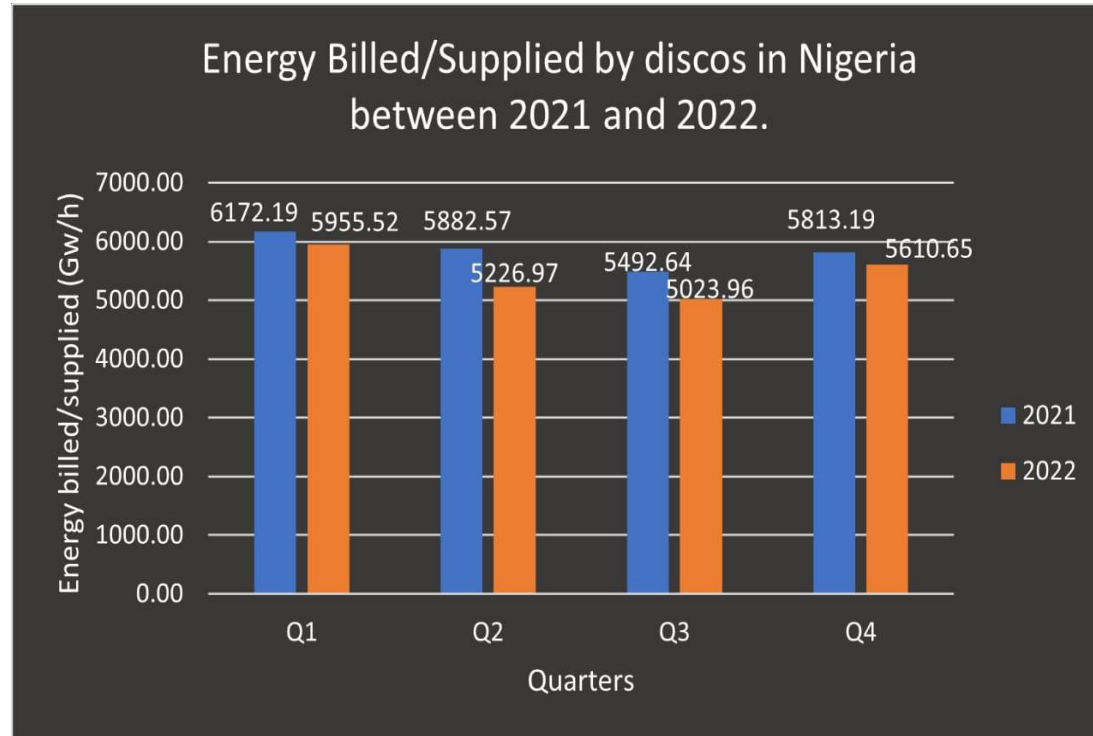
This problem matters because power shortages in Nigeria have significant economic implications for businesses, including reduced productivity, increased operating costs, and limited operational hours. Which subsequently disrupts operations, leading to inefficient business processes and potential business closures, resulting in job losses and economic hardship for employees

User Persona

Adeola Ogunbiyi is a 35-year-old entrepreneur who owns a small retail store in Lagos State, Nigeria. She has been facing consistent challenges due to the frequent and unpredictable power shortages in the area, which hinder the smooth running of her business. Adeola is determined to find sustainable solutions to overcome this limitation and ensure her business's success.

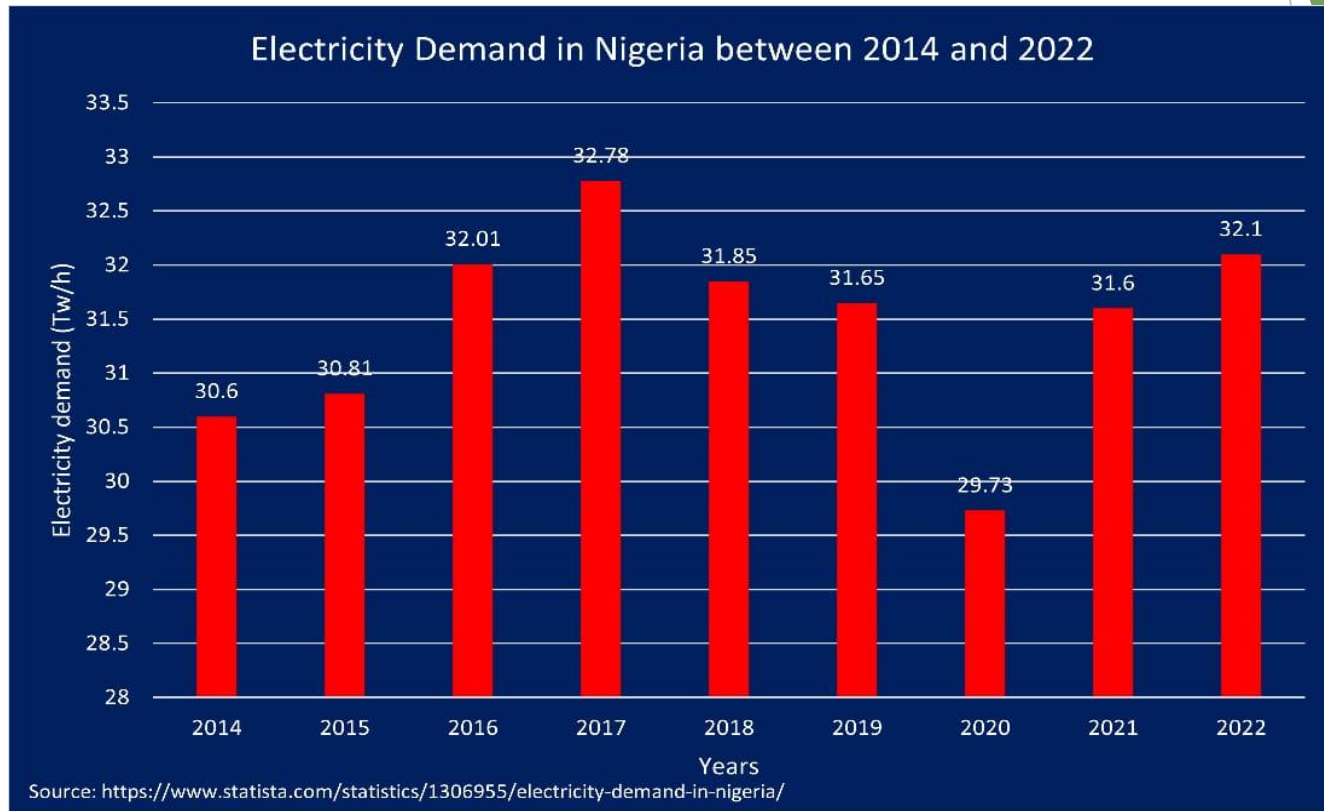


ENERGY BILLED/SUPPLIED BY DISCOS IN NIGERIA BETWEEN 2021 AND 2022



Source: <https://nigerianstat.gov.ng/elibrary/read/1241206>

ELECTRICITY DEMAND IN NIGERIA BETWEEN 2014 AND 2022



Source:

www.statista.com/statistics/1306955/electricity-demand-in-nigeria/

ELECTRICITY DEMAND AND SUPPLY CURVE OF NIGERIA

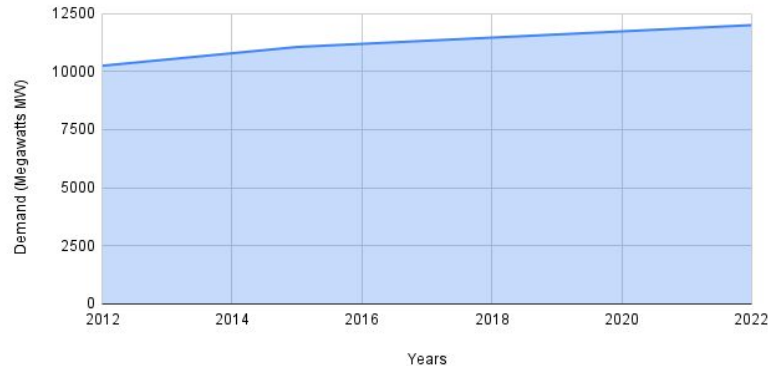
ELECTRICITY DISTRIBUTION IN MEGAWATTS VS YEARS



The above graphs illustrates the large gap in the demand and supply of electricity in Nigeria , and over the years demand has been increasingly higher than supply, in recent years the electricity demand (12000 MW) in Lagos only is almost equal to the electricity supplied (12522 MW) to the whole nation, which in turn affects every aspect of the Lagos state's economy.

LAGOS STATE ELECTRICITY DEMAND CURVE

Demand (Megawatts MW) vs. Years



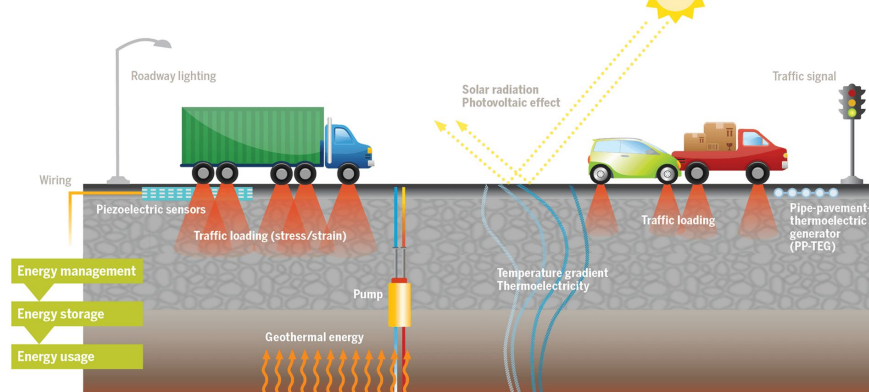
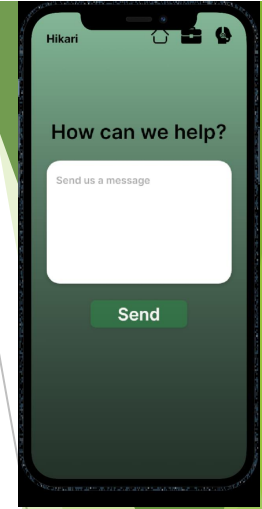
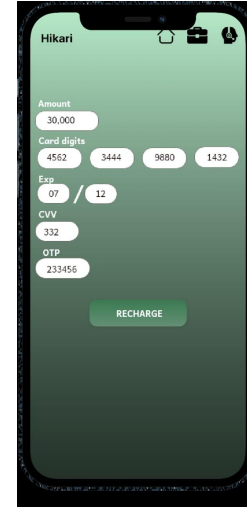
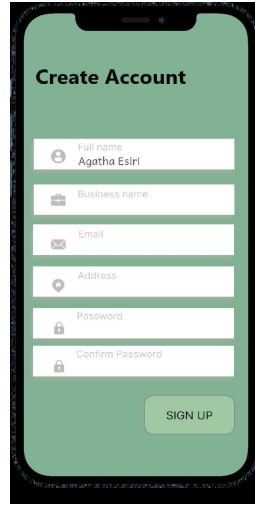
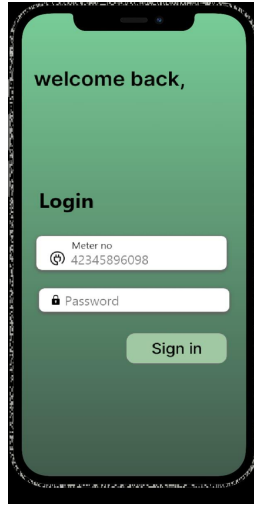
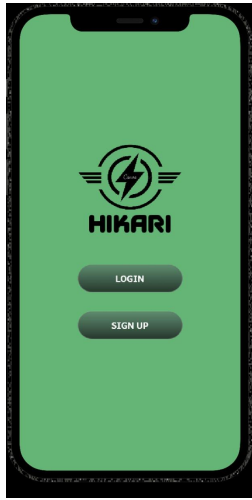


We propose the use of multiple forms of kinetic energy, such as power generated from people and equipments in motion, by deploying pressure to voltage sensors per m² of roads, in order to convert pressure exerted by cars and foot steps of people commuting from one place to another into electricity. Hikari through its app would be able to inform users on how much energy has been generated and how much they can use.

This solution was well thought because of the highly populated and congested city of Lagos.

Hikari will reduce the cost of electricity as it is sustainable, giving users a break down of their power usage which will enable them to know what appliances to cutdown supply, while giving them constant updates of change in electricity tariff rates by hydroelectric power stations. It will give back power to the users.

Hikari Wireframes





PAIN POINTS AND USERS NEEDS

A building is usually occupied by more than one set of business owners , how will each individual be able to monitor their individual power usage seeing that they all use the same meter number, as allocated per household in Lagos? my users need to be able to monitor their individual consumption of electricity.

My user needs a way to be able to share the points made from generating their own electricity to other users.



Hikari plans on developing a system that allows individual store energy generated in batteries also to monitor and control their individual usage of electricity.



With sufficient funding we can develop electricity generators powered by the movement of vehicles, humans , animals and human powered equipment. Smart straps, or watches with the function of monitoring how much energy a person generates in their day to day life, whether by walking, driving, exercising, movement around their shops or any other sort of motion in general, this produced energy will be introduced, with an incentive of obtainable "points" which are granted depending on how much energy a person generates.

No matter how little the energy generated, this may even be enough to store up energy that can power a barber's clippers, keep a frozen food shop fridge running, or take advantage of the busy Lagos traffic and generate electricity for the traffic and street lights. Respectively, this will in turn encourage daily movement which is part of ALX daily 3 and commercial night-life of the Lagos streets increasing economic yields.



Why:

This problem matters because power shortages in Nigeria have significant economic implications for businesses, including reduced productivity, increased operating costs, and limited operational hours. Which subsequently disrupts operations, leading to inefficiencies, delays, and potential business closures, resulting in job losses and economic hardship for employees.

This solution would make a difference because with **Hikari**, small businesses could generate their own electricity and with the help of our software, monitor and control their entire electricity supply and usage, this will lead to power supply preparedness and predictability which will in turn mitigate the dangerous effects of power shortage.

Appendix:

Similar solution shown to be successful :

<https://www.greenmatters.com/news/2017/07/05/z28cz7v/street-harvest-london#:~:text=Pavege n%20has%20redesigned%20Bird%20Street%20in%20London%E2%80%99s%20West,from%20each%20human%20step%20to%20create%20kinetic%20energy.>

<https://bgr.com/science/this-company-created-floor-tiles-that-convert-footsteps-into-energy/>