



**Baderia Global Institute of Engineering and
Management, Jabalpur, Madhya Pradesh 482002**



BrahmaX 1.0

The Creation of Tomorrow

BrahmaX 1.0

www.codecrax.com

THEME-GREEN TECH: DESIGNING SUSTAINABLE SOLUTIONS TO PROTECT AND HEAL OUR PLANET

- **Problem Statement: Renewable energy solutions: Technologies that harness clean energy sources to reduce reliance on fossil fuels and mitigate climate change.**
- **Team Name: Hack HORIZON**



Solar Power

Efficient photovoltaic systems for clean energy generation.



Wind Energy

Advanced turbines converting wind into sustainable electricity.



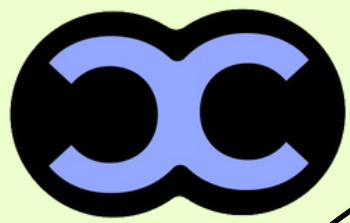
Smart Grid Integration

Innovative grid solutions optimizing energy distribution.

ECOBIT-SMART RENEWABLE ENERGY USAGE TRACKER

- **Solution OverView-** EcoBit is a user-friendly web application designed to educate households about their daily energy consumption and promote renewable energy adoption. It highlights potential savings and carbon footprint reductions achievable by switching to solar or wind power.
- **Problem Solving** - This app addresses the common barrier of less awareness about current energy use and renewable benefits.
- **Innovation:** Our idea stands out by offering beginner-friendly, educational content, instant calculations without login, and personalized renewable energy tips based on user input.





• TECHNOLOGIES USED:



HTML



CSS



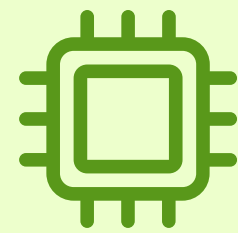
Google Charts



JavaScript



GitHub Pages



No Hardware

• PROCESS FLOW:

User Input → Data Processing → Comparison → Visualization → Suggestions

• METHODOLOGY:



Design UI with forms



Calculate energy usage



Compare energy types



Show savings with charts



Personalized tips

RENEWABLE ENERGY: FEASIBILITY & VIABILITY AT A GLANCE

■ Feasibility: Technical

- Proven technologies: Solar PV, wind turbines , grid-scale batteries
- Solar PV capacity exceeds 2.5 TW globally (2025)
- Wind power contributes 7% of global electricity

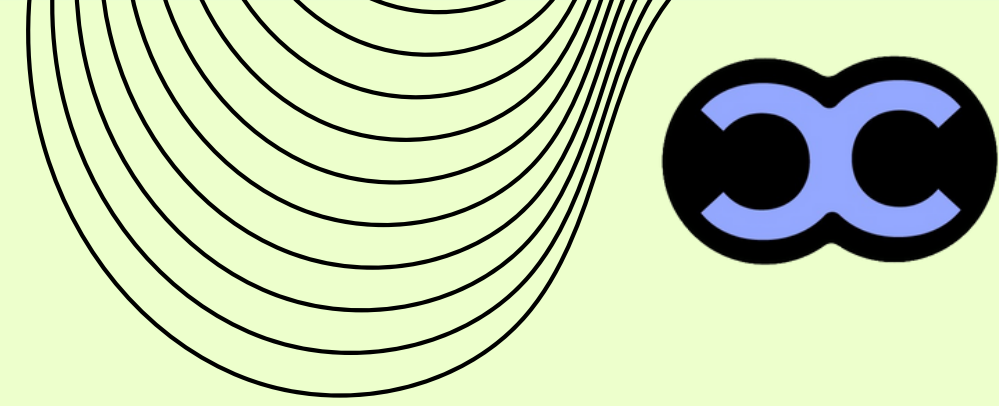
■ Challenges

- Intermittency requires grid upgrades and forecasting Storage limits: batteries cover 4-12 hours only Land use conflicts need mitigation strategies

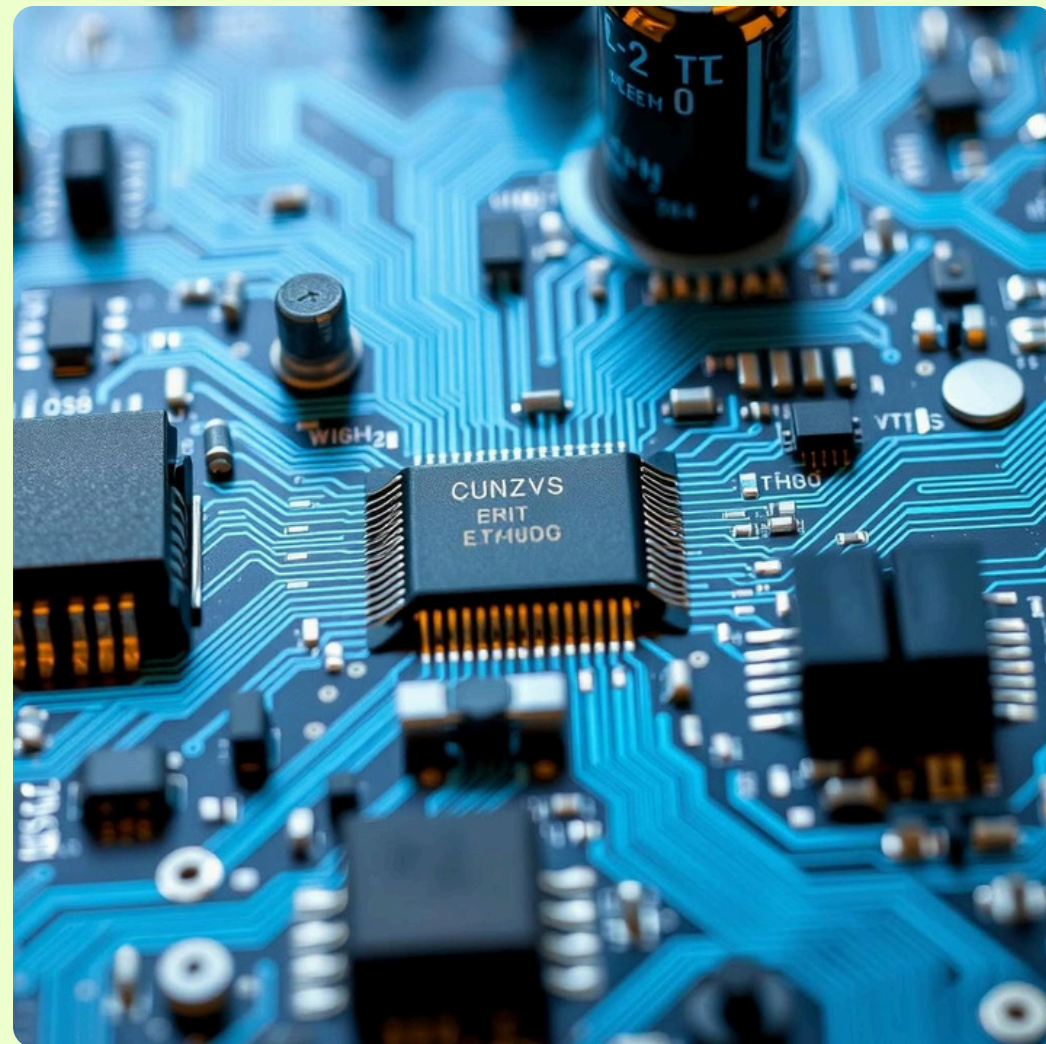
■ Feasibility: Practical

- Scalable worldwide with current infrastructure Costs declining sharply solar down 82%, wind down 60% LCOE now competitive with fossil fuels





ECOBIT: IMPACT AND BENEFITS



Target Audience Impact

- EcoBit empowers eco-conscious individuals, homeowners, and students.
- It offers tailored insights on personal energy consumption patterns.

30%

Improved Reliability

Hybrid system outperforms single-source renewable setups in maintaining steady power supply.

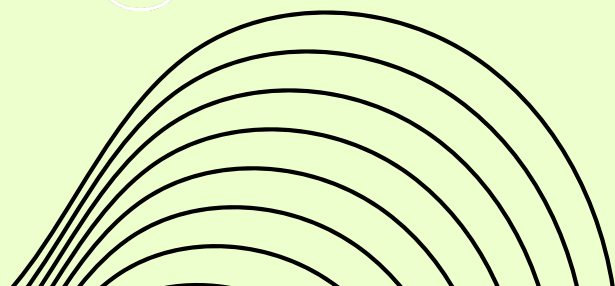
40%

Carbon Reduction

Achieves up to 40% lower carbon emissions in target deployment zones.

Social Benefit

- Promotes clean energy awareness and education.
- Encourages informed choices for a greener lifestyle.



REFERENCES

- Solar Energy Industries Association (SEIA): <https://www.seia.org/initiatives/about-solar-energy>
- MIT Energy Initiative: <https://energy.mit.edu>
- NREL - National Renewable Energy Laboratory (USA): <https://www.nrel.gov>
- Ministry of New and Renewable Energy, Government of India: <https://mnre.gov.in>
- International Renewable Energy Agency: <https://www.irena.org>
- National Research Development Corporation :<https://www.nrdc.org>

Thank You!!!