

Household Appliances & Energy Detection



EcoScan: Track down Your Energy Usage for a better environment for everyone!

OUR TEAMS



Wana



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Rezha



Afdan



Putra



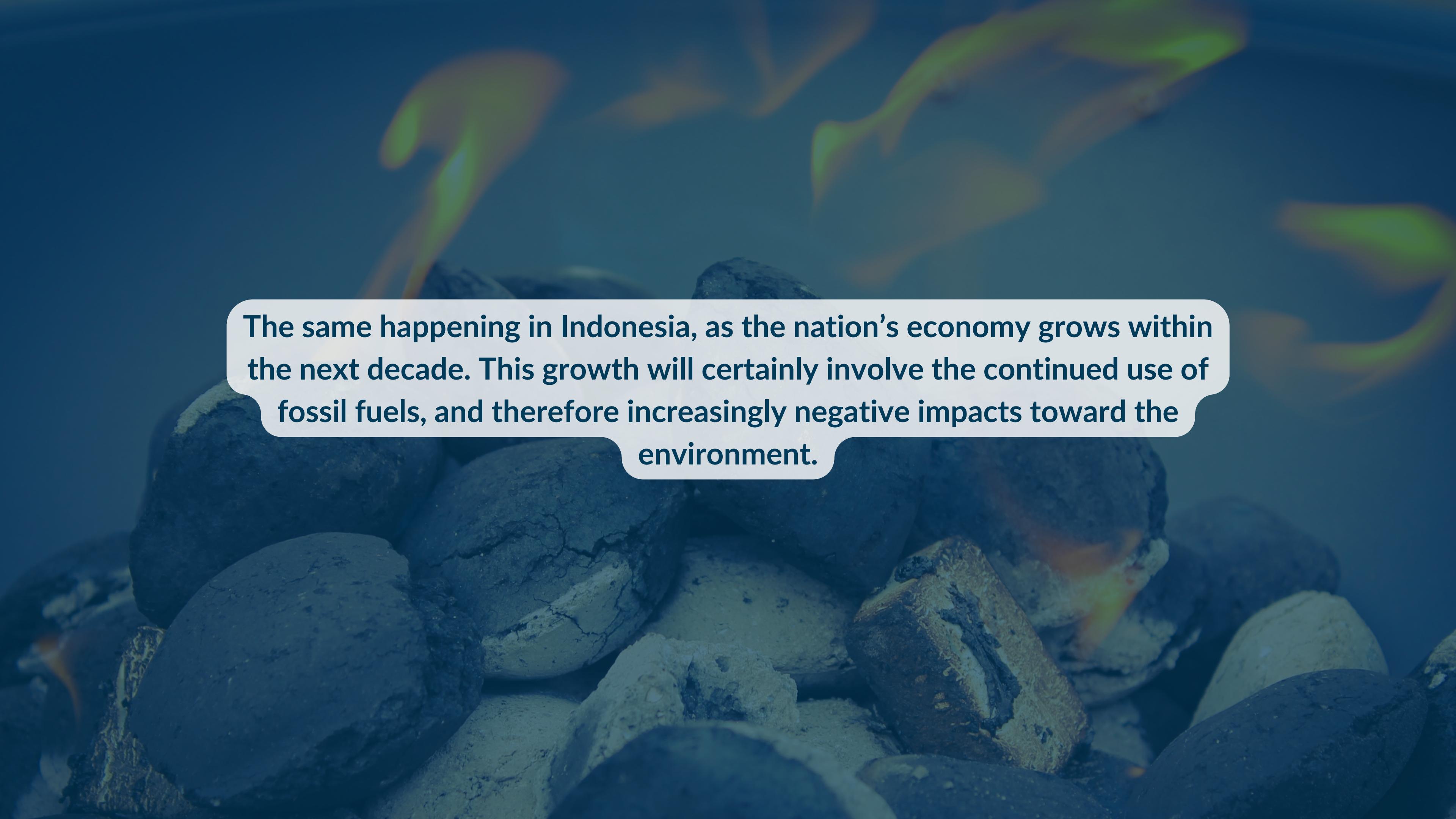
37%

As the demand for household appliances grows,
leading to an increase in their production and
consumption (2013 - 2020).

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



One of the relevant area of intervention to ensure sustainable production and consumption.



The same happening in Indonesia, as the nation's economy grows within the next decade. This growth will certainly involve the continued use of fossil fuels, and therefore increasingly negative impacts toward the environment.

Despite the significant increase in the adoption of household appliances, the absence of responsible and efficient usage practices contributes to excessive energy consumption, wastage, and unnecessary strain on resources. To address this issue, effective strategies are required to encourage the development of sustainable usage habits.





VS



"it's the consumers that actually burn and demand the fossil fuels that these companies provide"

Richard Heede (co-founder and co-director of the Climate Accountability Institute) interview with Vox

**What actions can we take to
play a part in building a more
environmentally sustainable
future?**





Here is, **EcoScan** as an innovative solution to address these issues.

What Do We Bring?

Energy Consumption

For household electronic appliances.

Recommendations

Give an alternative suggestion of appliances.

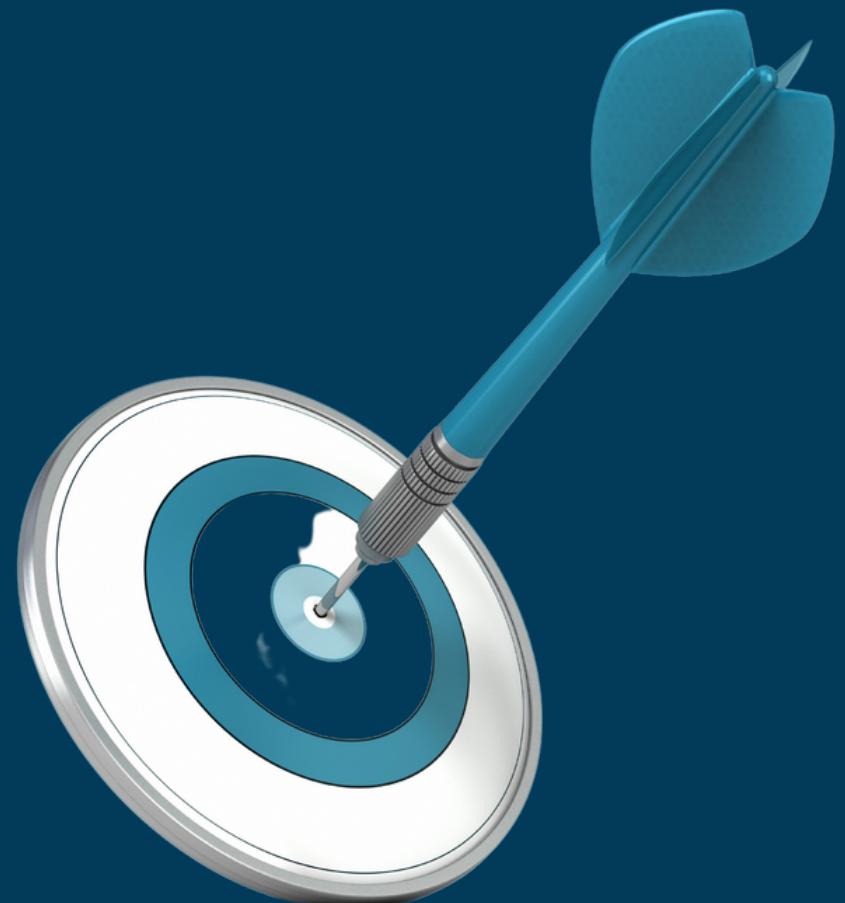


EcoScan

Environmental Impact

Production, consumption, and disposal.

Our Goals



People can be mindful of their impact on the environment

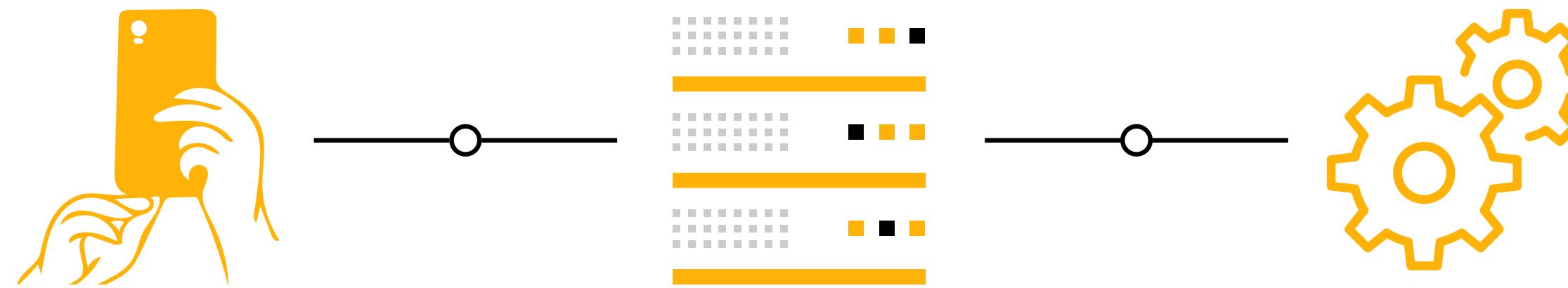


Make more careful decisions about their energy consumption and reduce carbon footprint



Positive impact on the environment and provide a more sustainable future for all

How can machine learning help in performing household appliances detection?



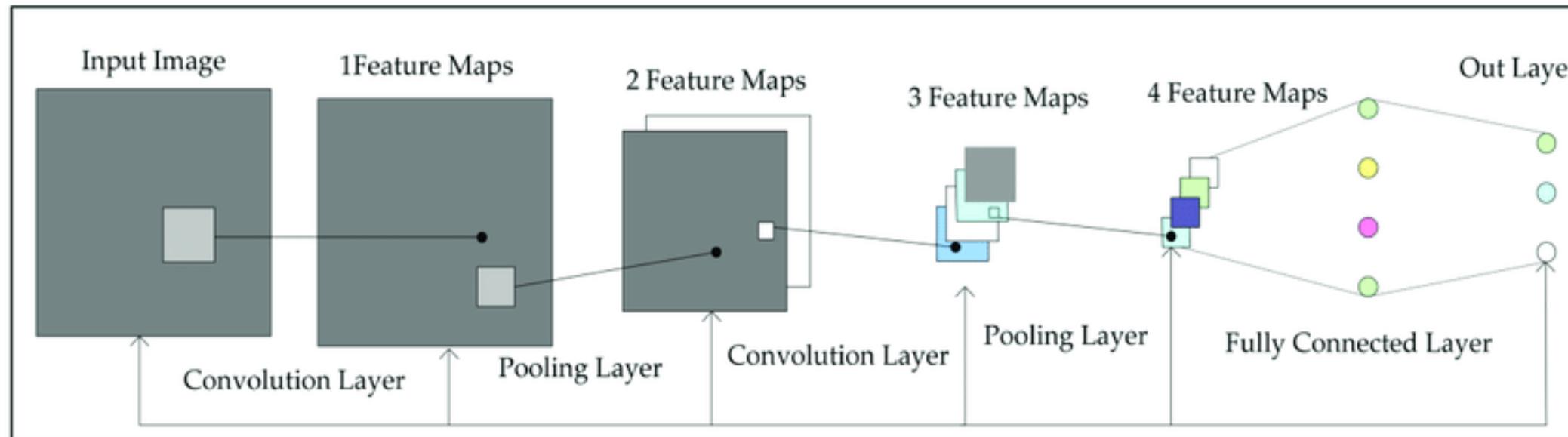
Users take pictures of their household appliances.

The images will be converted into an array format.

The system will make predictions about the type of household appliances.

The Model We Use

Transfer Learning: DenseNet121

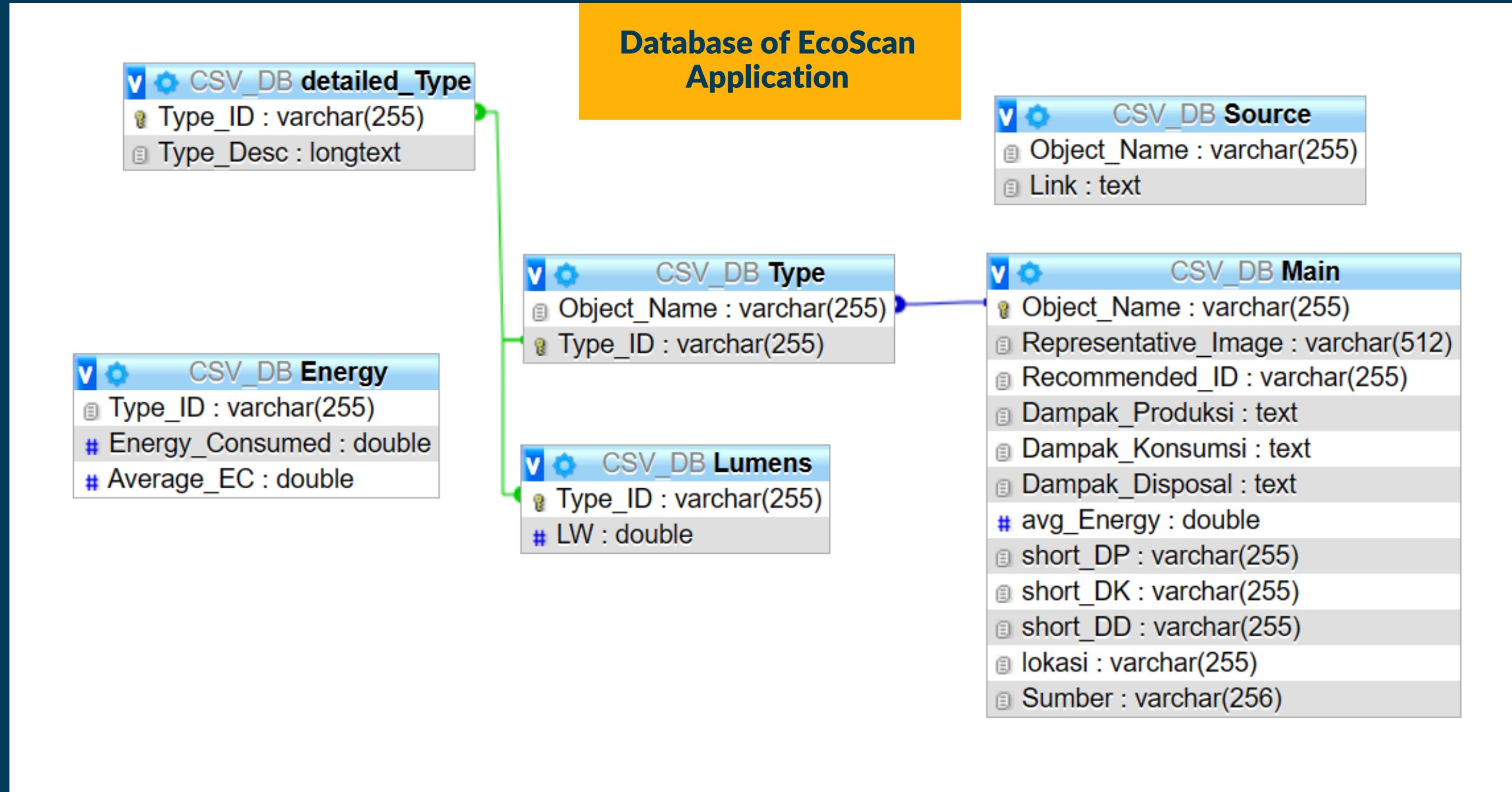


<https://iq.opengenus.org/architecture-of-densenet121/>

Output:

- Air Conditioner
- Hair Dryer
- Laptop
- Iron
- Oven
- Refrigerator
- Rice Cooker
- Television
- Vacuum Cleaner
- Washing Machine
- Lamp

The Database

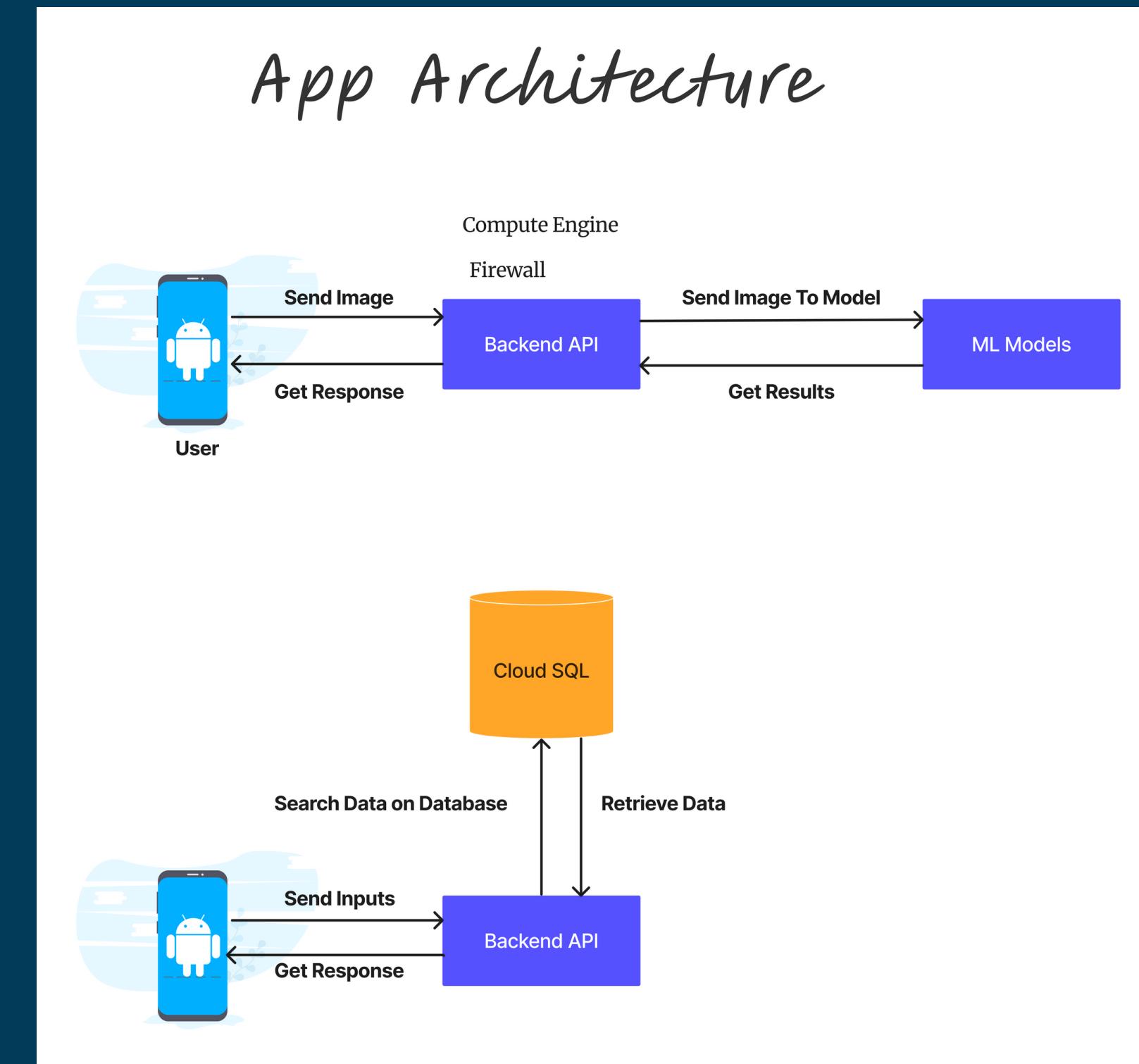


API (Flask Web Framework)

Flask provides an API, or application programming interface, that allows you to develop web applications using Python. The Flask API enables you to handle URL routes, access databases, manage user sessions, send HTTP responses, and much more.



The Architecture of Cloud Computing That We Use



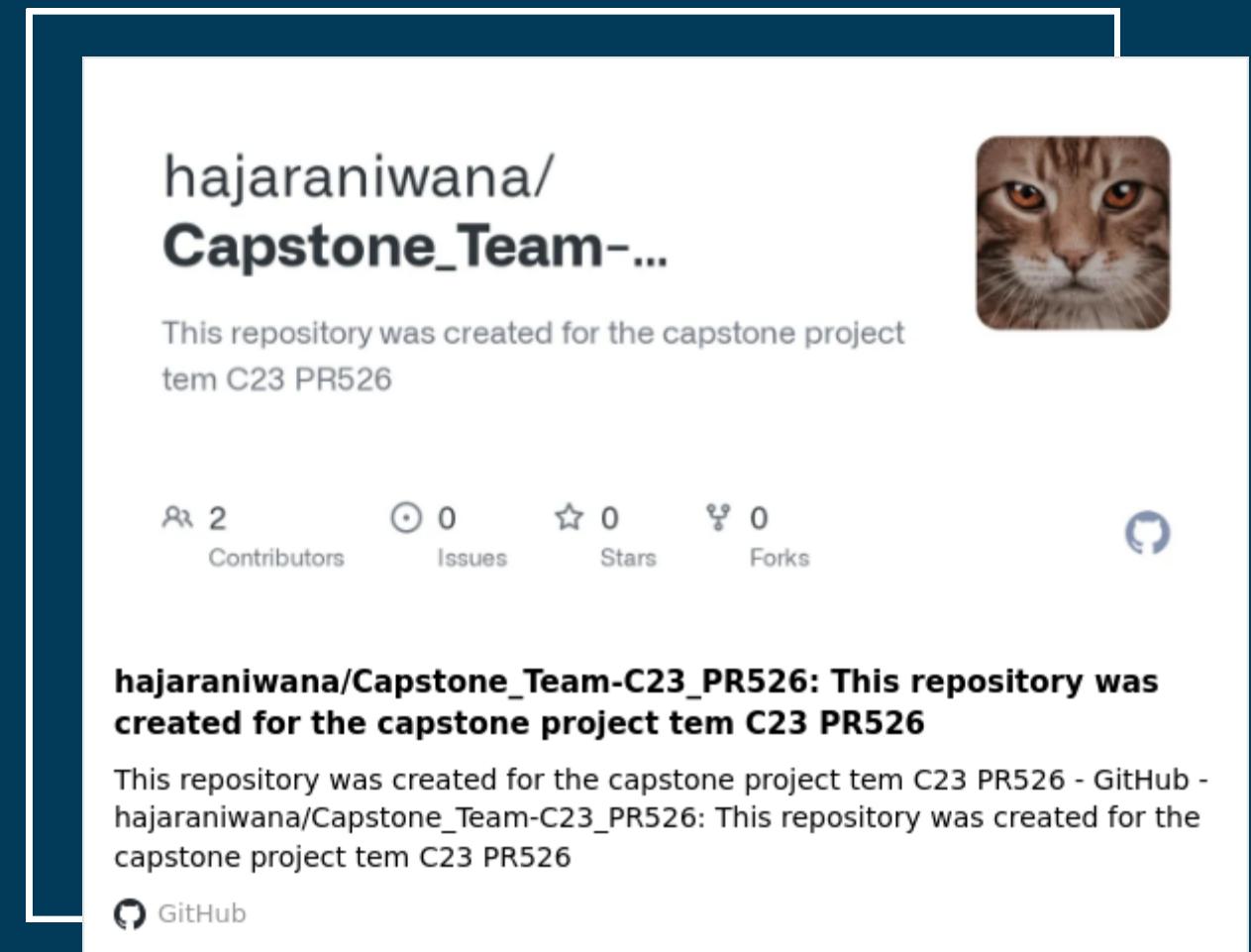
EcoScan Application

The image displays four screenshots of the EcoScan mobile application, showing its user interface across different screens.

- Welcome Screen:** Shows a "Welcome!" message at the top. Below it is a 3D isometric illustration of a person standing on a laptop screen, which is part of a larger electronic device setup. At the bottom are two buttons: "Scan New" (with a barcode icon) and "Upload Image" (with a camera icon). A navigation bar with icons for Home, Scan, About, and Help is at the very bottom.
- Product Detail Screen:** Displays a black desk fan on a stand. The text "Sekai HFN-650 High Velocity Fan Desk Fan" is above the image. Below the image are four data cards:
 - Konsumsi Daya: 30-50 watt
 - Dampak Produksi: Lorem ipsum dolor sit amet
 - Dampak Disposal: Lorem ipsum dolor sit amet
 - Dampak Konsumsi: Lorem ipsum dolor sit ametA "GET MORE INFO AND ALTERNATIVE" button is at the bottom.
- About Us Screen:** Contains sections for "About Us" and "Our Mission".
 - About Us:** Describes Zenith as a group of students from various universities in Indonesia who care about the environment and want to contribute to it. It states that Zenith means the peak, symbolizing our ambition and respect for the environment.
 - Our Mission:** Explains that EcoScan is created to help ordinary people understand the environmental impact of household electronics. It highlights that the app covers energy consumption, production impact, disposal impact, and the impact of products, consumption, and disposal of these devices.The section "Application advantages" lists three benefits: instant results, online access, and data from reliable sources.
- Form Screen:** A form for reporting a product. It includes fields for "LOKASI BARANG DIRUMAH?" (DAPUR), "NAMA BARANG" (MAGICOM), and "JENIS BARANG" (PENANAK NASI). A "SUBMIT" button is at the bottom. The background features a 3D illustration of a smartphone displaying a clock and a document.

Want to Replicate Our Project?

Kindly check our **Git README.md** in the following link to see the step-by-step replication of our project.

A screenshot of a GitHub repository page. The repository name is "hajaraniwana/Capstone_Team-C23_PR526". It features a profile picture of a brown tabby cat. Below the name, a description states: "This repository was created for the capstone project tem C23 PR526". It shows 2 contributors, 0 issues, 0 stars, and 0 forks. A GitHub logo is at the bottom right.

hajaraniwana/Capstone_Team-C23_PR526: This repository was created for the capstone project tem C23 PR526

This repository was created for the capstone project tem C23 PR526 - GitHub - hajaraniwana/Capstone_Team-C23_PR526: This repository was created for the capstone project tem C23 PR526

https://github.com/hajaraniwana/Capstone_Team-C23_PR526



Deployment and Go-to-market Plan

Target Market or Person



Wide Age Range

The app is designed for users of all ages, from children to adults and seniors. It provides relevant and beneficial learning experiences tailored to specific age groups.



Energy Education

The app caters to students, academics, and adults interested in learning more about energy and its impact on the environment. It serves as an effective educational tool in schools, colleges, or for individuals seeking to enhance their understanding of energy.



Environmental Consciousness

The app targets individuals who are environmentally conscious and strive to reduce their daily energy consumption. It appeals to those interested in renewable energy, energy efficiency, and sustainable practices.



Family and Household

The app can be used by families and households to engage all family members in enjoyable and interactive energy learning. It helps teach children the importance of responsible energy usage and involves the entire family in energy-saving efforts.

Target Market or Person



Professionals and Experts

The app also appeals to professionals in the energy field, resource management, or related industries. They can use the app as an additional information source, training tool, or inspiration for developing sustainable solutions.



Community and Schools

The app can be utilized by community groups, schools, or non-profit organizations aiming to raise energy awareness in their communities. It facilitates organizing energy awareness campaigns, educational events, or engaging community members in positive energy-related actions.

Comparison

After doing some research there are no applications that are similar to the one we made both the purpose and the implementation

Here is the advantages of using our application

1. The application is educative and persuasive for people to care about energy
2. User friendly display
3. Easy to use by everyone
4. Design by prioritizing familiarity with what the user knows

Project Milestone For 2023 (To End Of Year)

Timeline Budgeting Resources

Continue developing additional features and functionalities of app. Prepare for beta testing by inviting a group of users to test the app and provide feedback.

Finalize the development of our app, ensuring all features are working as intended. Set up analytics and crash reporting tools to monitor app usage and identify issues.

JULY

OCTOBER

AUGUST

DECEMBER

Address any issues or bugs identified during beta testing. Perform compatibility testing on different devices and platforms. Prepare store assets, such as app icons, screenshots, and descriptions. Apply for developer accounts on relevant app stores

Launch app on the desired stores. Monitor user feedback, reviews, and ratings. Continuously improve and update app based on user feedback and market trends. Implement app analytics to track user engagement and make data-driven decisions for future updates.

With 5K USD / IDR 70 M

Timeline Budgeting Resources

Operational Expenses

No	Description	Units	Price per units in Rupiah	Total Price (IDR)
1.	Internet provider	6	500.000	3.000.000
2.	Google Cloud	1	2.000.000	2.000.000
3.	Android Developer Salary	1	3.800.000	3.800.000
4.	Cloud Engineer Salary	2	3.800.000	7.600.000
5.	Machine Learning Engineer Salary	3	3.800.000	11.400.000
6.	App License	2	370.000	740.000
7.	Business Development and Marketing Budget	1	5.000.000	5.000.000
8.	Google Drive (2 TB)	1	1.350.000	1.350.000
9.	Colab Pro+	1	748.000	748.000
	TOTAL	-	-	35.638.000

With 5K USD / IDR 70 M

Timeline

Budgeting

Resources

One Time Expenses

No	Description	Units	Price per units in Rupiah	Total Price (IDR)
1.	RnD Cost	1	15.000.000	15.000.000
2.	Production Cost	1	1.000.000	1.000.000
4.	Hardware (PC)	6	16.000.000	1.600.000*
5.	Unexpected Cost	1	16.762.000	16.762.000
	<u>TOTAL</u>	-	-	<u>34.362.000</u>

*Depreciation/Month

With 10K USD/ IDR 140 M

Timeline **Budgeting** **Resources**

Total Expenses

No	Description	Proportions	Total Price
1.	All aspects covered in Budgeting - 1	50%	Rp 70.000.000
2.	Additional Budget for Team Salary	15%	Rp 21.000.000
3.	Additional Budget for Research/Ops	5%	Rp 7.000.000
4.	Marketing and Sales	5%	Rp 7.000.000
5.	Market research and competitive analysis	5%	Rp 7.000.000
6.	Future Development / R&D	10%	Rp 14.000.000
7.	Other Expenses (taxes, reserves)	10%	Rp 14.000.000
Total			Rp 140.000.000

Sustainability

Sources of Income

- Sales (penjualan): 5 M
- Project (proyek): 25 M
- Subscription (langganan): 1,5 M
- Grants (hibah): 20 M
- Soft Loan (pinjaman): 4 M
- Rounds of Funding (pembiayaan): 30 M

Efficiency Priority

- Project
- Grants
- Rounds of Funding

With 5K USD**Personnel: 6 people**

- Android Developer: 1
- Machine Learning Engineer: 3
- Cloud Engineer: 2

Tools:

- Computer: 6

Subscriptions:

- Google Cloud
- Cloud SQL
- Internet Provider
- License

With 10K USD**Personnel: 13 people**

- Android Developer: 4
- Machine Learning Engineer: 4
- Cloud Engineer: 4
- Consultant: 1

Tools:

- Computer: 12
- Monitor external: 2

Subscriptions:

- Google Cloud
- Cloud SQL
- Internet Provider
- License
- API Services

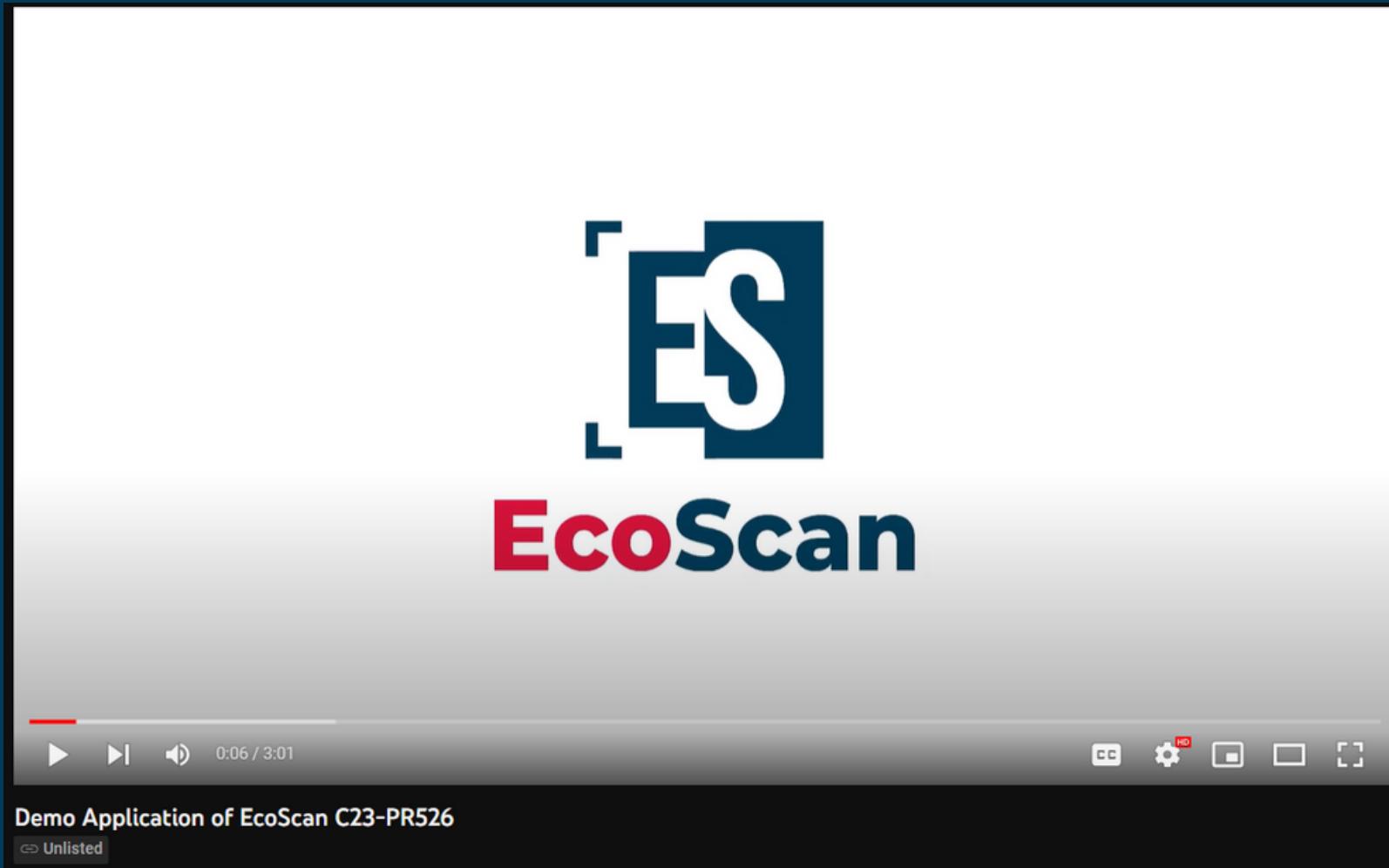


THANK YOU

C23-PR526



Demo App



[Click Here for Demo Application](#)