

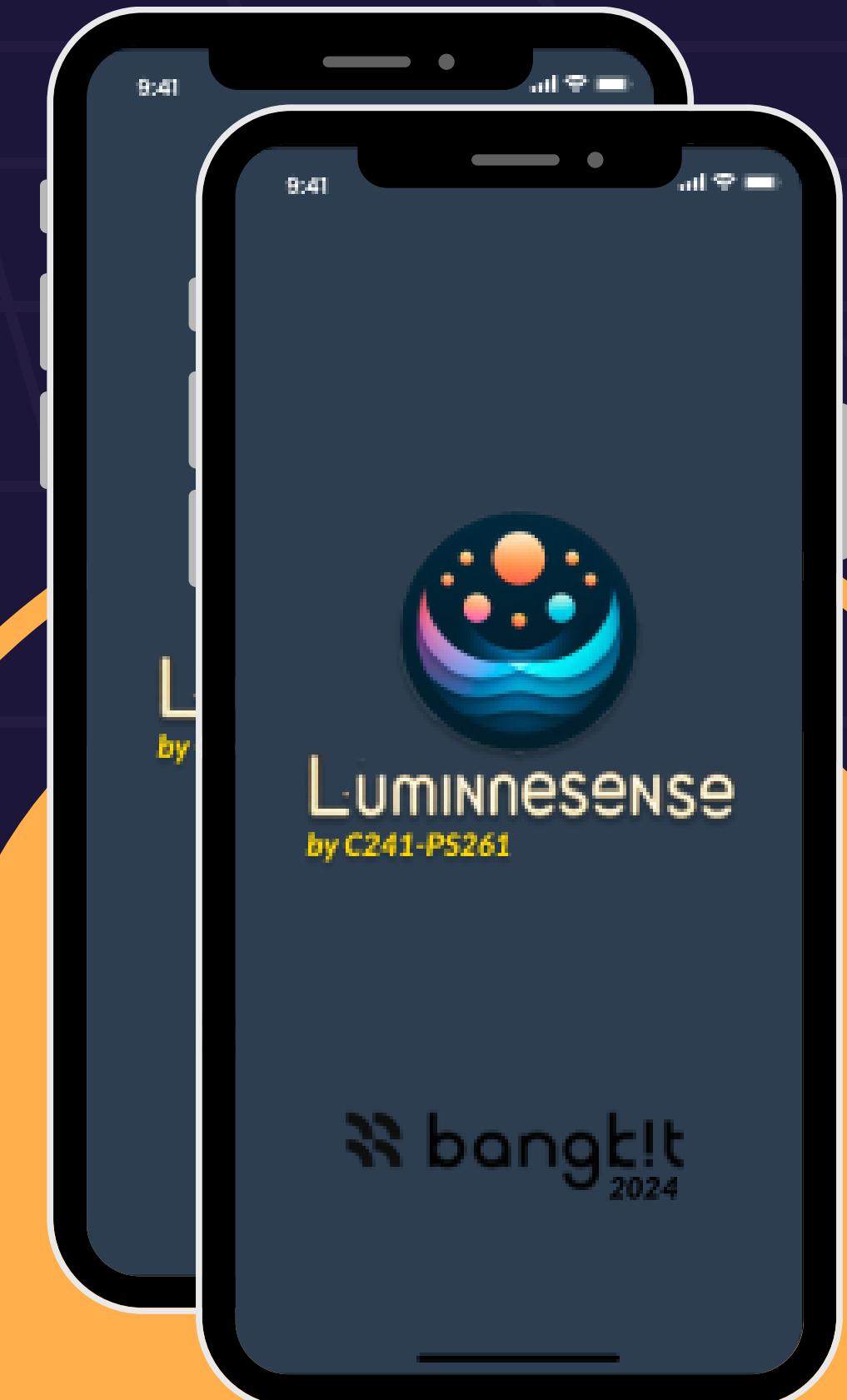


LUMIN_ESENSE
by C241-PS261

Lumina SENSE

Product-based Capstone Project

Team ID: C241-PS261



bangkit
Google goto traveloka

Kampus
Merdeka
INDONESIA JAYA



OUR MEMBERS



Machine Learning

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Machine Learning

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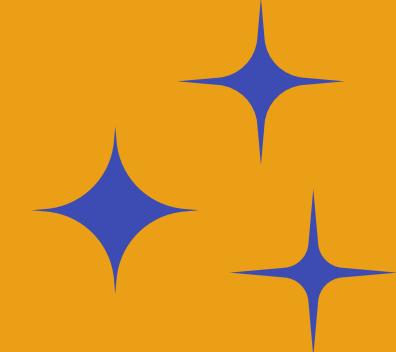
Idlofi Zahir Rajaba
A012D4KY3411



Mobile Development

Clara Isra Syamda
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BACKGROUNDER

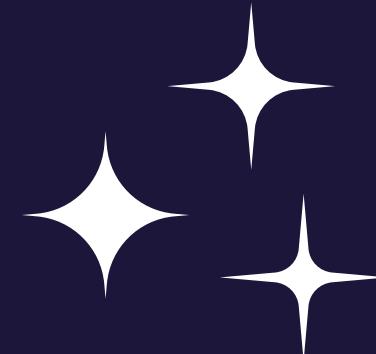


Kelompok Pelanggan - PLN	Listrik Yang Didistribusikan Kepada Pelanggan (GWh)		
	2020	2021	2022
Sosial	8.050,55	8.665,99	10.073,23
Rumah Tangga	111.413,28	115.370,05	116.095,41
Bisnis	42.182,71	44.440,85	50.532,19
Industri	71.521,43	80.904,45	88.483,30
Publik	8.237,63	8.252,92	8.577,35
Semua Pelanggan	241.405,60	257.634,26	273.761,48

source: BPS

According to data from BPS, around 40% of the total distributed electricity is used by households. In 2020, household electricity consumption reached approximately 111,4 GWh and increased to around 115,4 GWh in 2021.

However, not all household electricity is used efficiently, one example being the frequent neglect in turning off lights when they are not needed.



INTRO LUMINASENSE

What is LuminaSense?

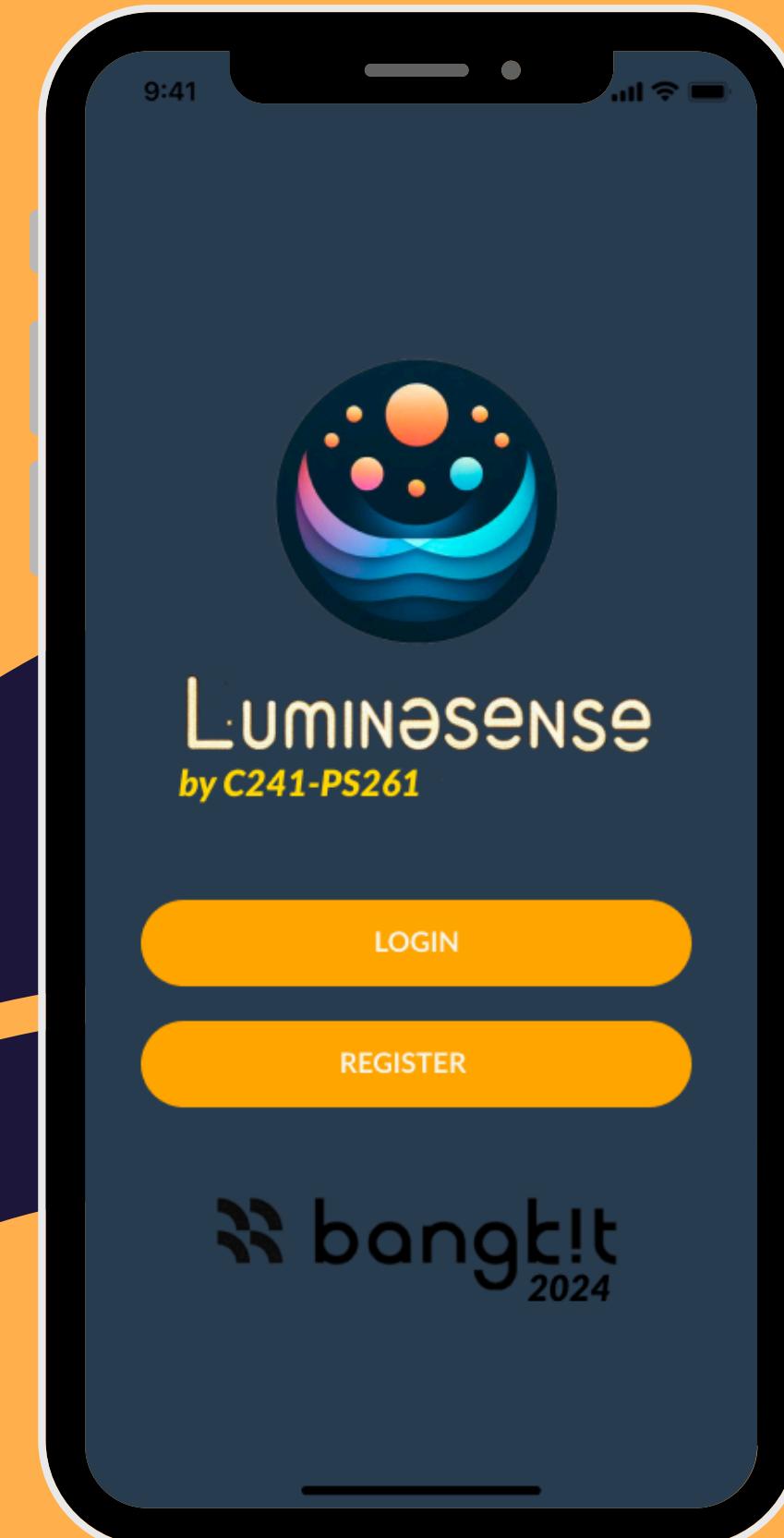
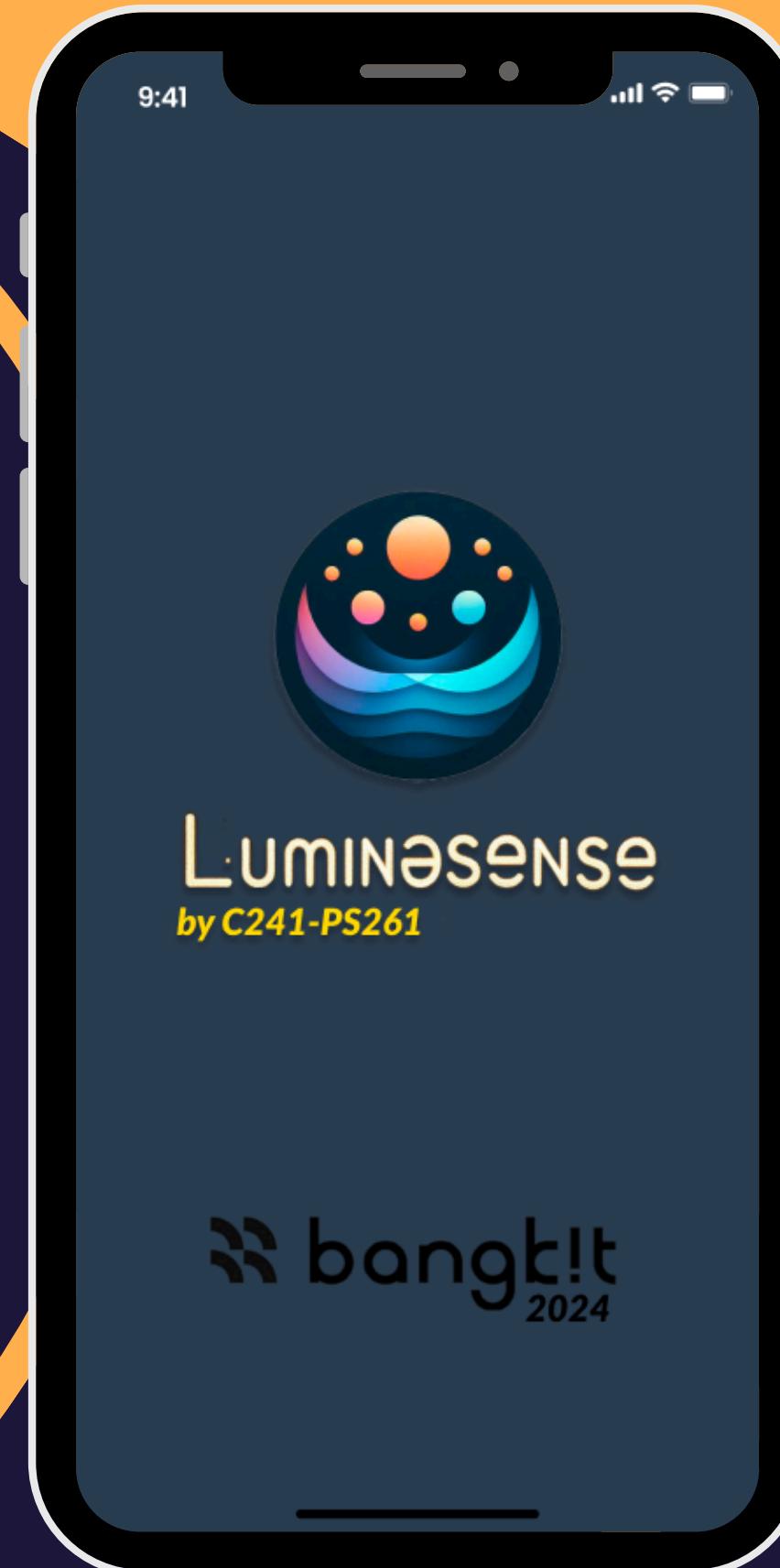


Our project proposes a Human Presence Monitoring System Using Cameras for Light Automation to tackle the urgent need for efficient indoor human presence monitoring, emphasizing sustainability and energy efficiency.





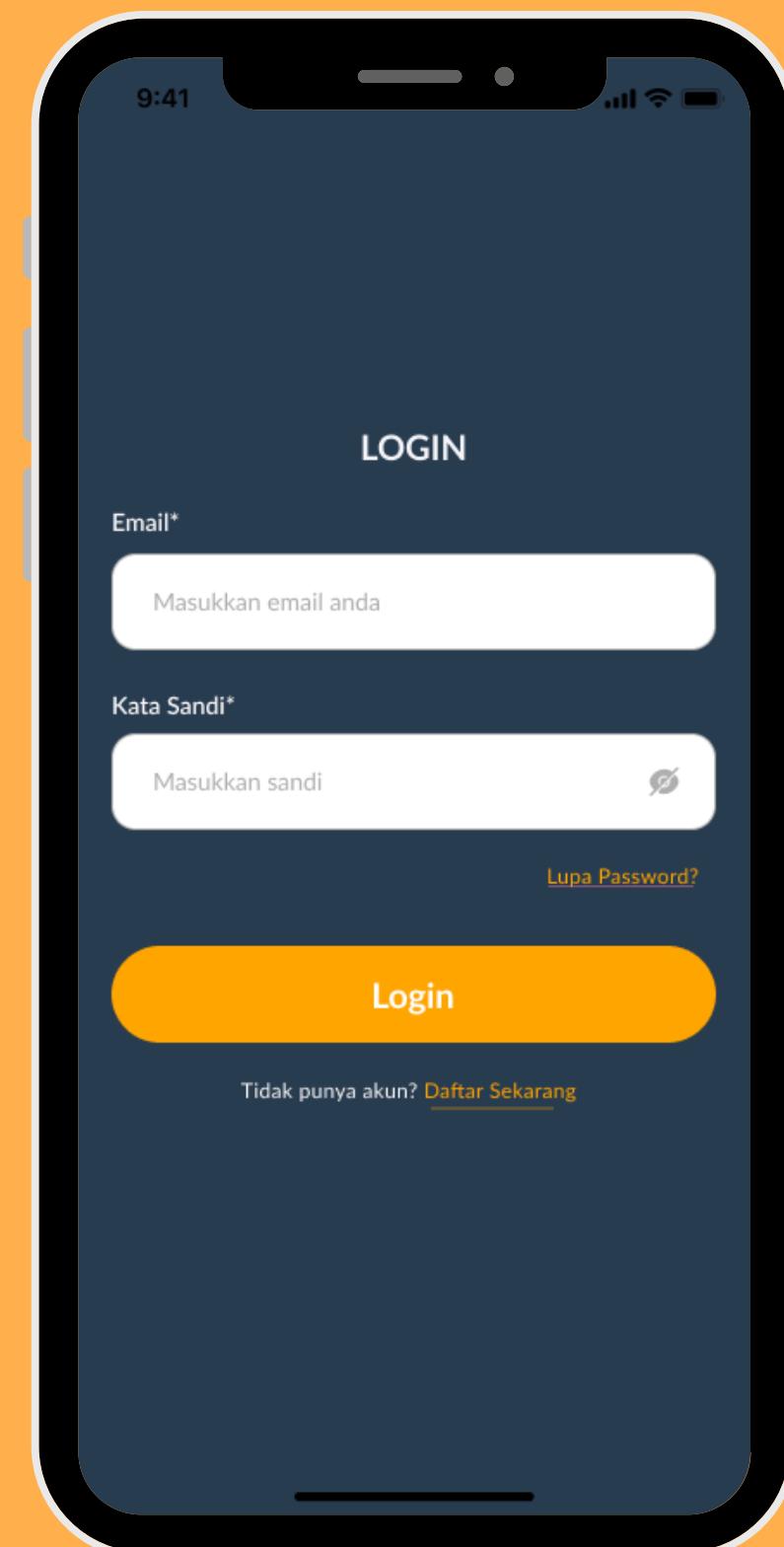
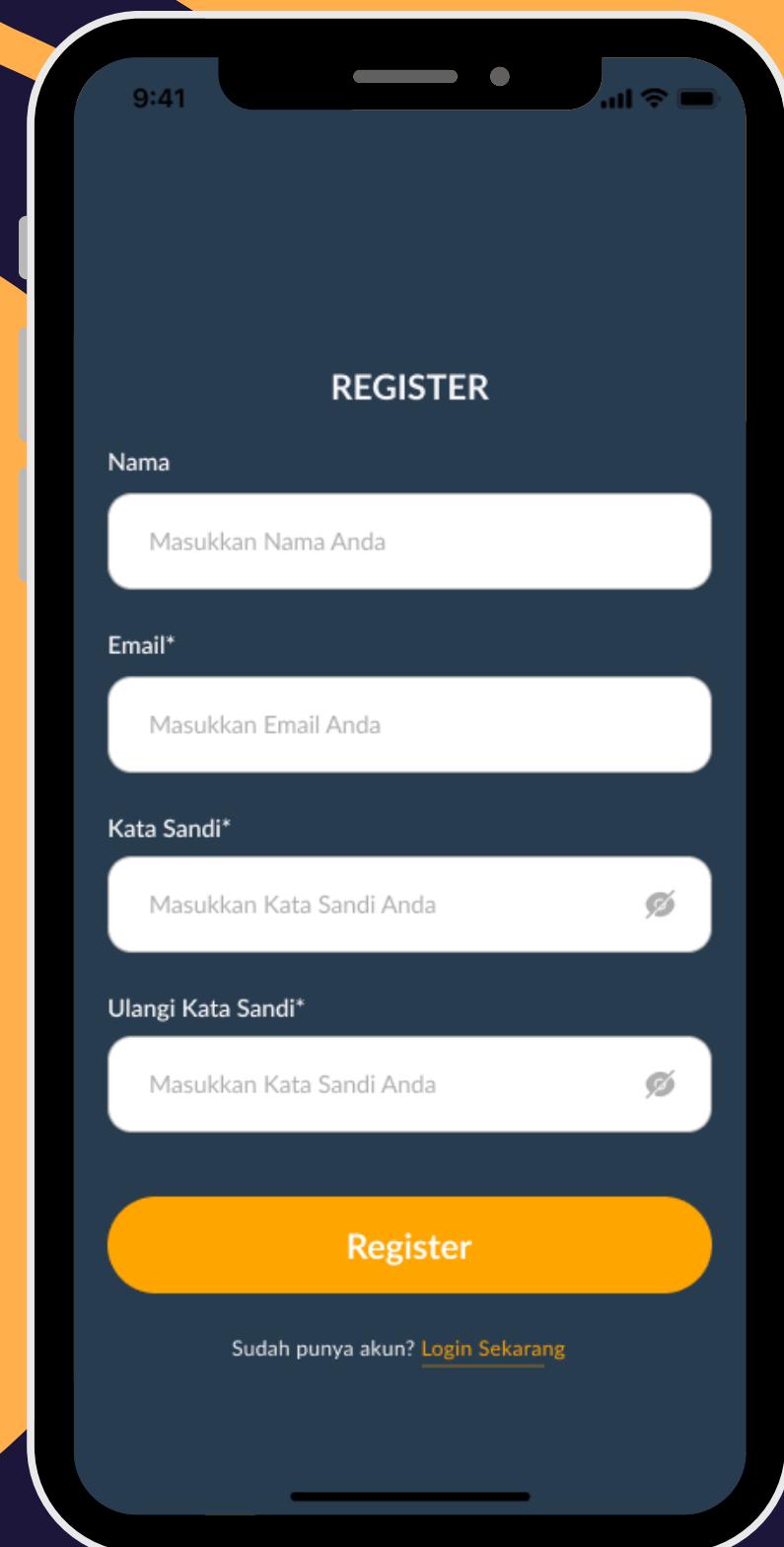
USER INTERFACE



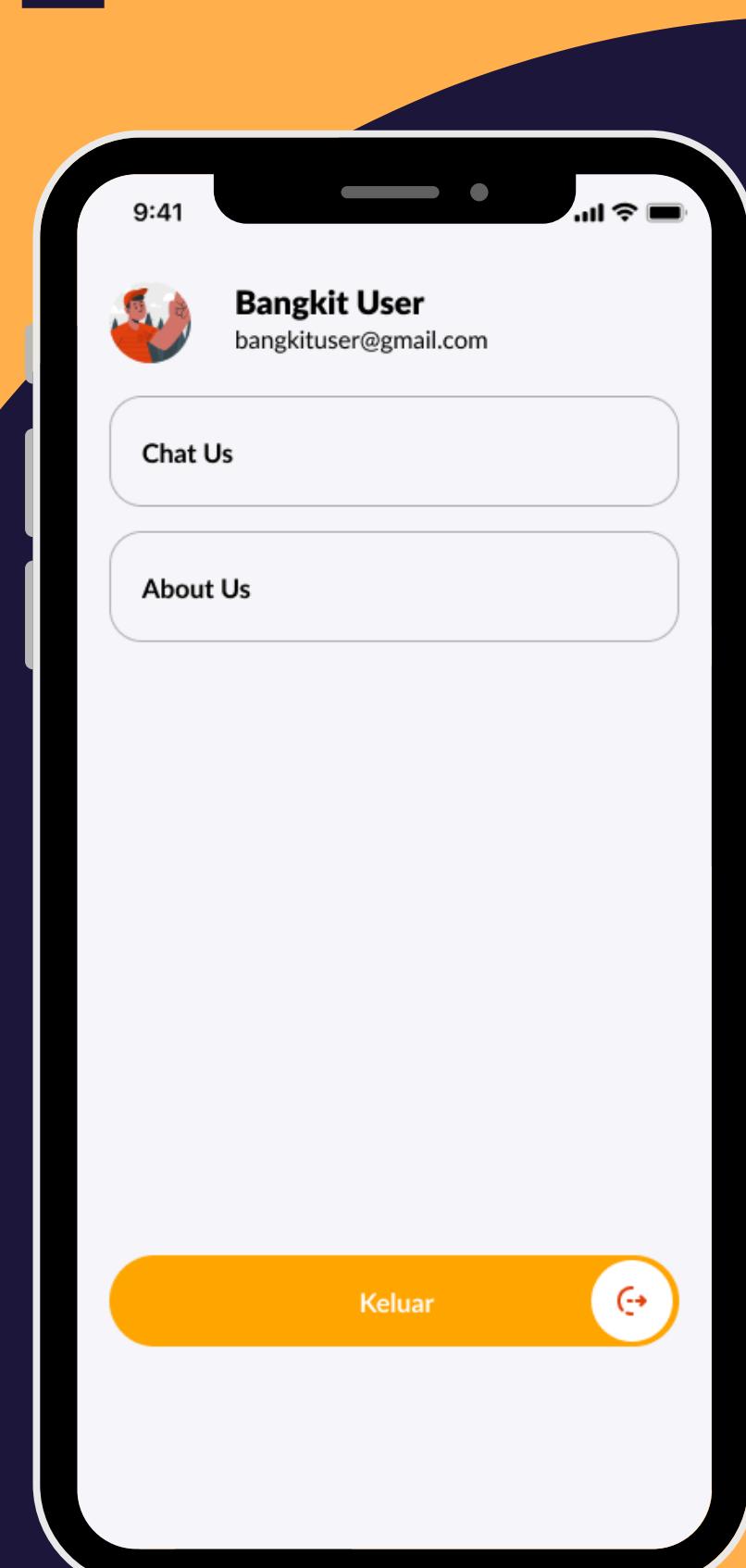
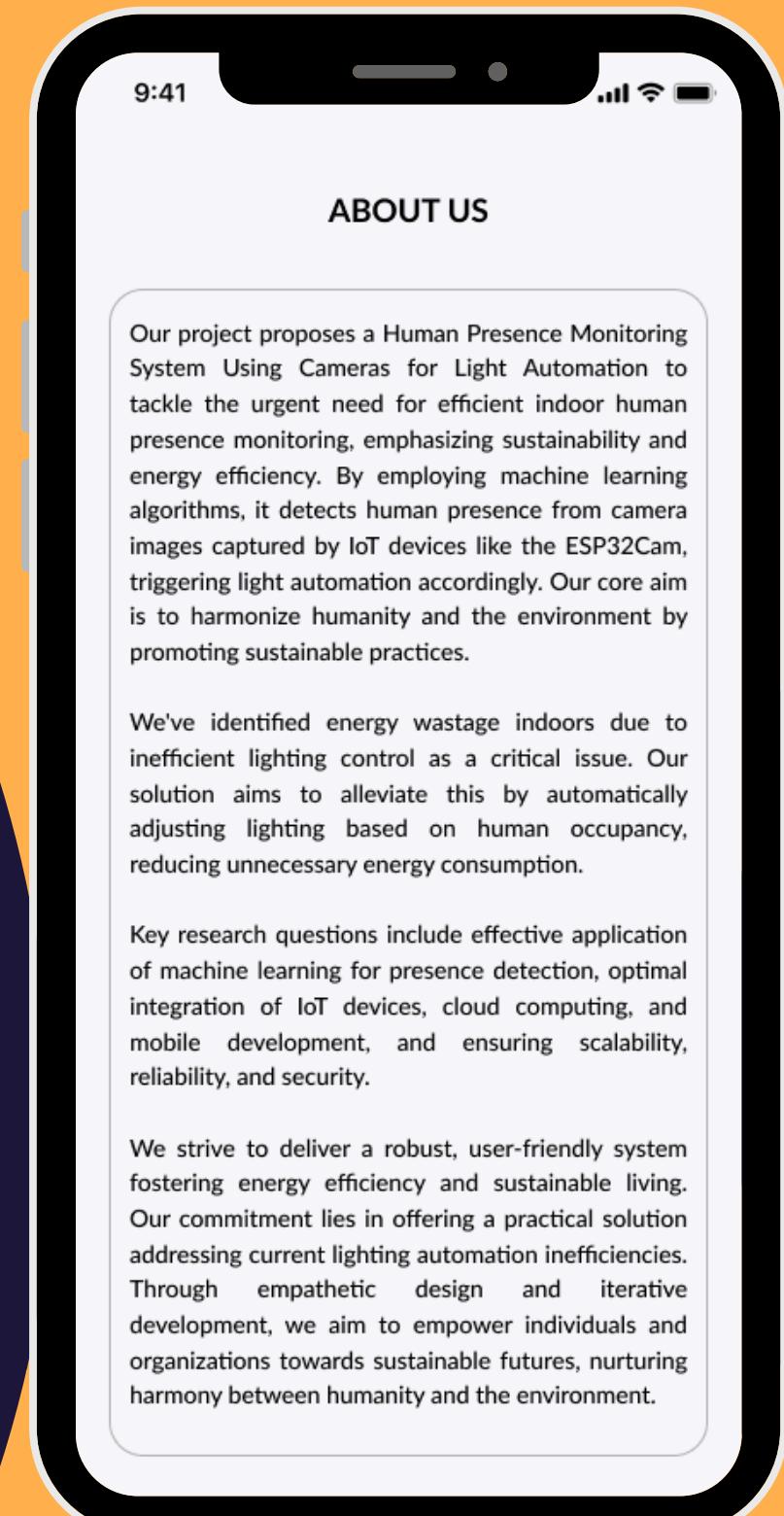
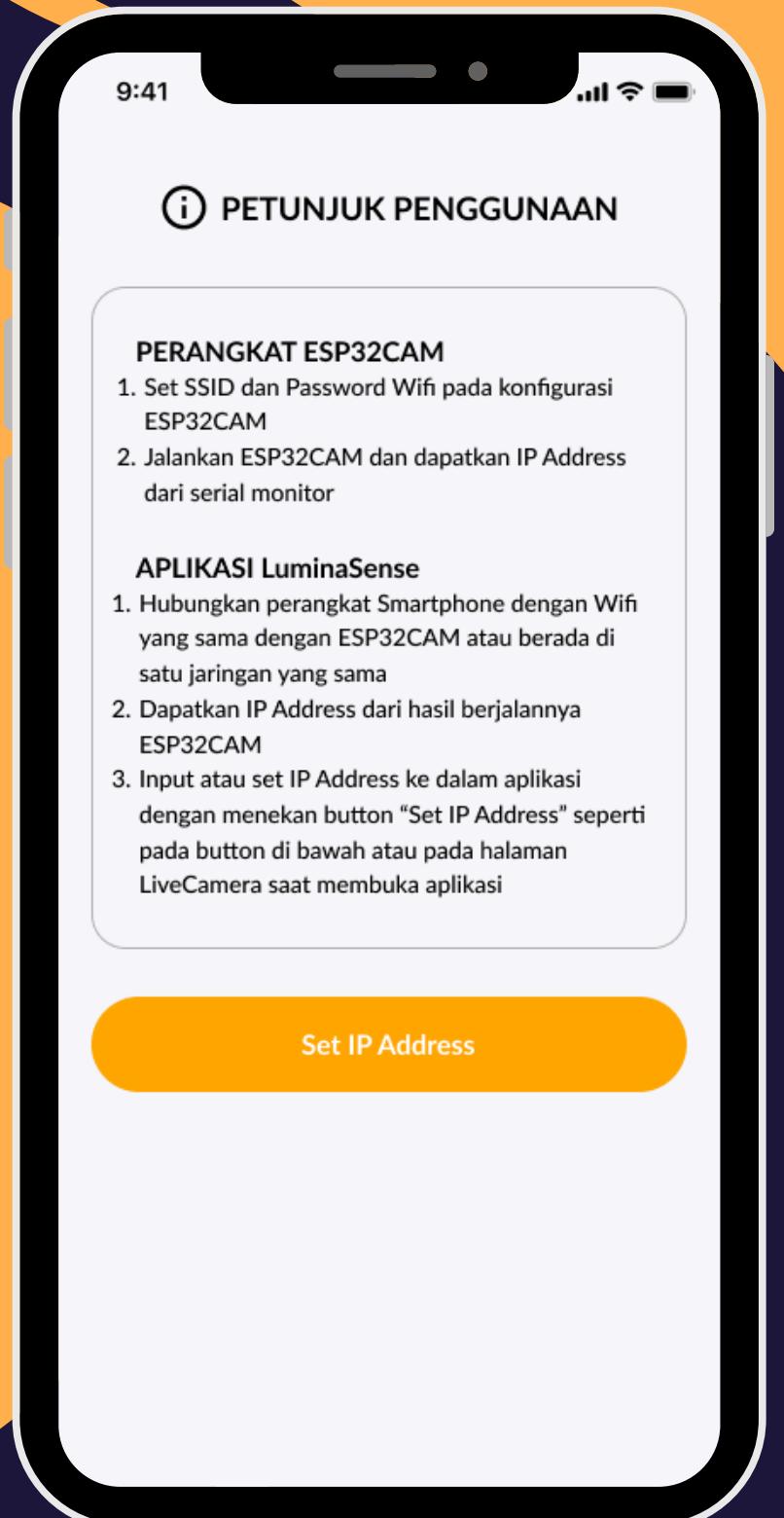


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USER INTERFACE

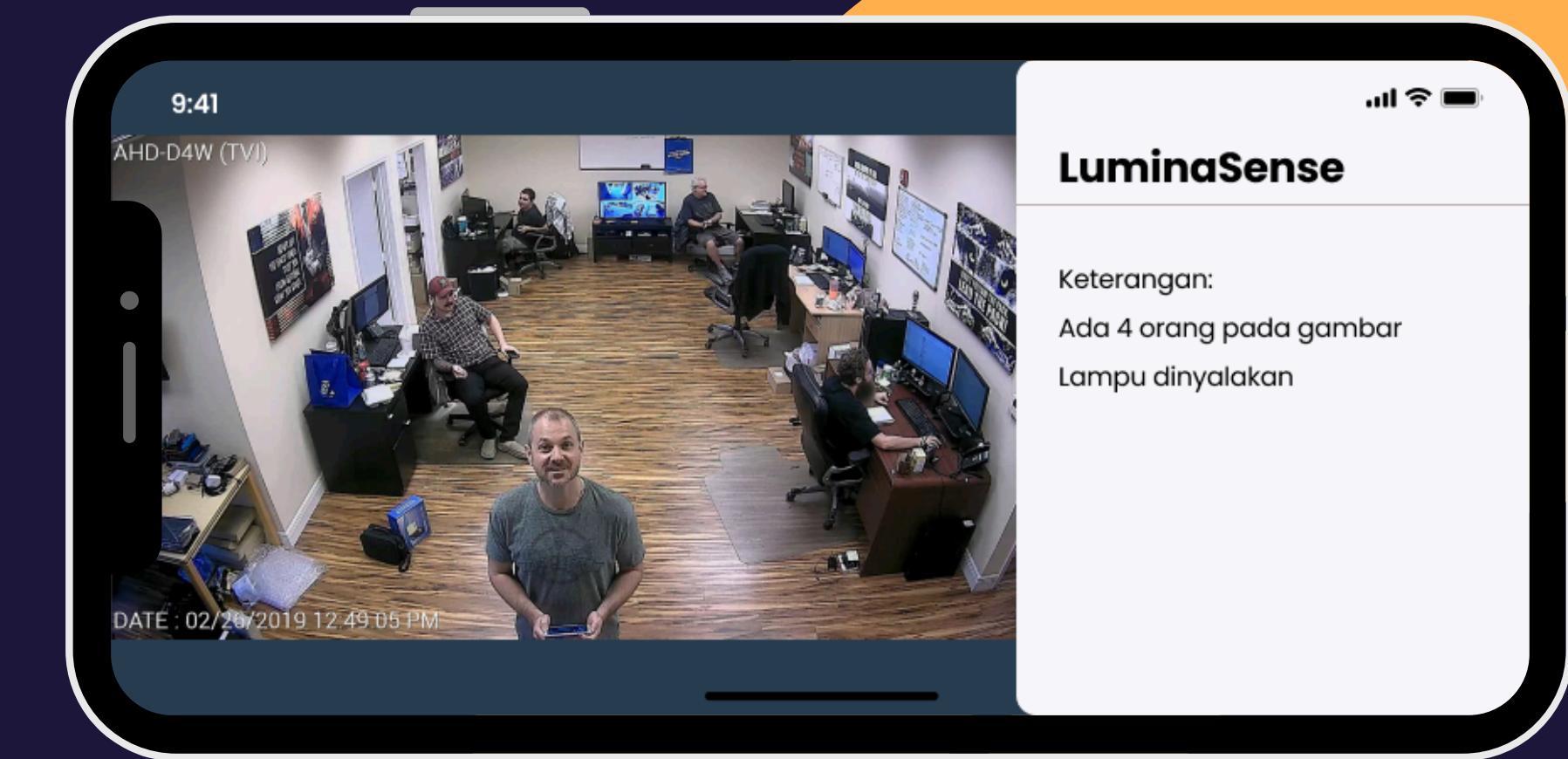


USER INTERFACE





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TARGET MARKET

Age Range	Profession	Roles	Hobbies
20+ years old	Homeowners, Property Managers, Engineers	Tech Enthusiasts, Eco-conscious Consumers	Smart home technology, Sustainability, Energy saving
	Office Managers, Retail Managers	Business Owners	Enhancing customer experience, Reducing operational costs
	Facility Managers, Healthcare Admins	Efficiency Seekers	Optimizing energy usage, Improving operational efficiency
	Factory Supervisors, Warehouse Managers	Industrial Operators	Efficient lighting management, Cost reduction



WHY TARGET MARKET NEED LUMINASENSE?

Our Human Presence Monitoring System (LuminaSense) Using Cameras for Light Automation meets the diverse needs of multiple target markets by enhancing sustainability and energy efficiency. Homeowners, property managers, and engineers benefit from reduced utility bills and a smaller carbon footprint. Office and retail managers can cut operational costs and improve sustainability, enhancing customer experiences. Facility managers and healthcare administrators achieve significant energy savings and operational efficiency, essential for 24/7 operations. Government officials and educators fulfill sustainability mandates and reduce costs, demonstrating environmental stewardship. Finally, factory supervisors and warehouse managers optimize lighting usage, significantly lowering electricity expenses and improving overall sustainability.



PURPOSE-DRIVEN

Our Human Presence Monitoring System (LuminaSense) Using Cameras for Light Automation is purpose-driven to enhance efficiency and sustainability across diverse sectors. By intelligently managing lighting based on real-time occupancy data captured through cameras, our solution aims to:

- Reduce Energy Consumption: By ensuring lights are only active when spaces are occupied, we minimize unnecessary energy usage, contributing directly to lower utility bills and a reduced carbon footprint.
- Enhance Operational Efficiency: Whether in homes, offices, healthcare facilities, government buildings, or industrial settings, optimized lighting management leads to streamlined operations, improved productivity, and enhanced comfort for occupants.



DATA-DRIVEN

Our system leverages advanced data analytics from camera feeds to drive decision-making and operational improvements:

- Real-time Occupancy Insights: Continuous monitoring of occupancy patterns provides actionable data to adjust lighting settings dynamically, ensuring optimal energy use without compromising safety or comfort.
- Performance Metrics: Quantitative data on energy savings, operational efficiencies, and environmental impact metrics are meticulously tracked and analyzed. This enables stakeholders to make informed decisions and validate the effectiveness of our solution.



GOVERNMENT REASONING

Our solution resonates strongly with government entities and policymakers:

- Compliance with Regulations: By deploying our system, government buildings can adhere to stringent energy efficiency regulations and sustainability mandates. This ensures alignment with national and international standards for environmental stewardship.
- Cost Savings for Public Budgets: Reduced energy consumption translates into significant cost savings for public sector budgets. This frees up resources for other critical infrastructure improvements and public services.
- Demonstrable ROI: Clear return on investment through reduced energy expenditures and operational efficiencies strengthens the case for public funding and investment in sustainable technologies.



STAKEHOLDERS RELATED TO AND BENEFITTED FROM LUMINASENSE

Our Human Presence Monitoring System(LuminaSense) benefits a wide array of stakeholders:

- Building Owners and Managers: Enhance property value through improved energy efficiency and operational savings.
- Facility Managers: Simplify operations with automated lighting controls that adapt to real-time occupancy data.
- Business Owners: Lower operating costs and enhance workplace productivity through optimized lighting solutions.
- Government Officials: Achieve sustainability goals while demonstrating leadership in environmental conservation.
- End Users (Employees, Residents, Patients): Enjoy enhanced comfort and safety with lighting tailored to occupancy, promoting a pleasant environment.

MARKETING STRATEGY

1. Market Segmentation

- Property Owners and Facility Managers: Energy efficiency and cost reduction.
- Business Owners and Office Managers: Productivity and comfort.
- Factory and Warehouse Managers: Energy cost reduction and sustainability.

2. Product Offering

- Advanced Technology: Optimizes lighting based on presence.
- Easy Integration: Compatible with existing infrastructure.

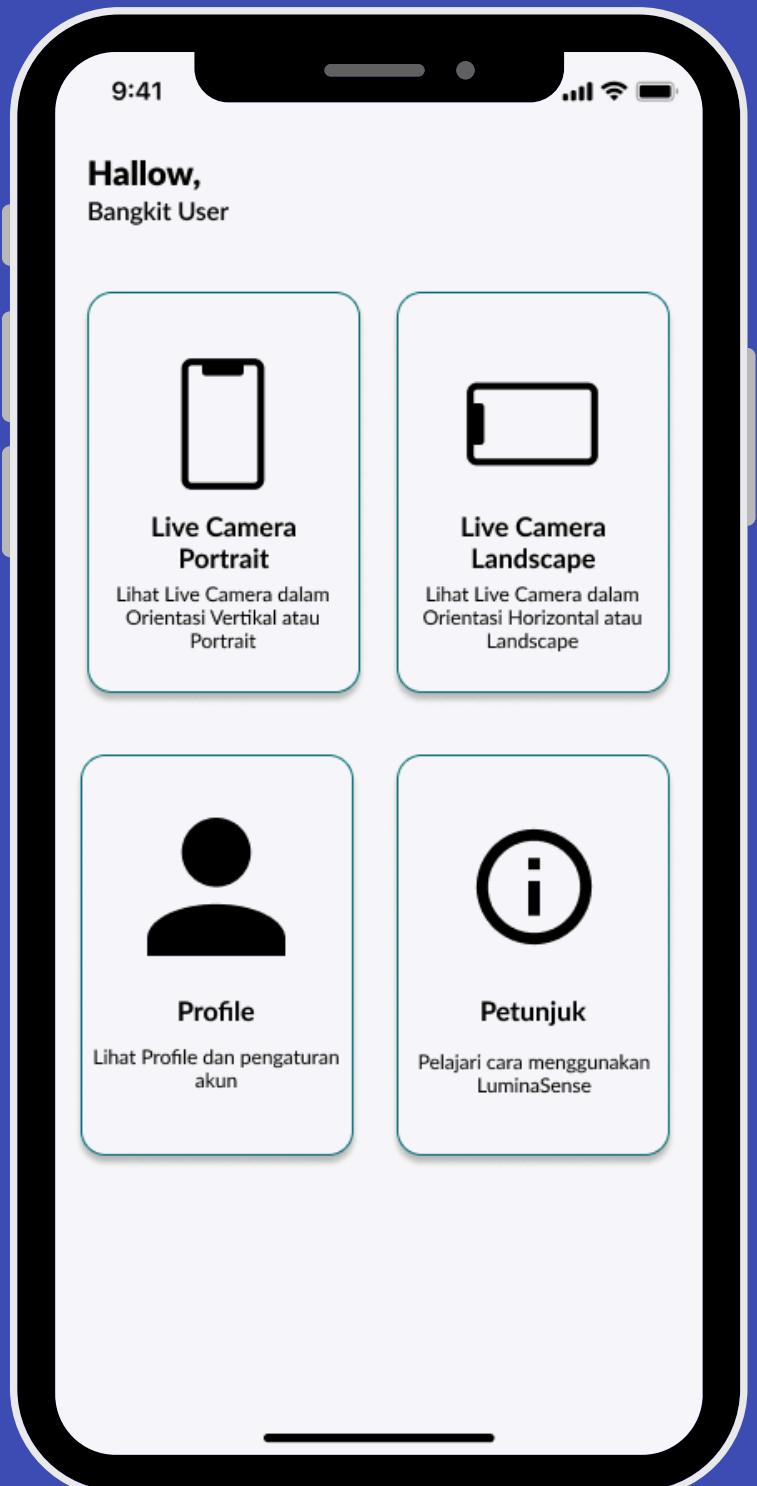
3. Market Penetration

- Educational Campaigns: Webinars, seminars, and marketing materials.
- Trial Offers: Free trials or demos.
- Strategic Partnerships: Collaborations with energy service providers and system integrators.

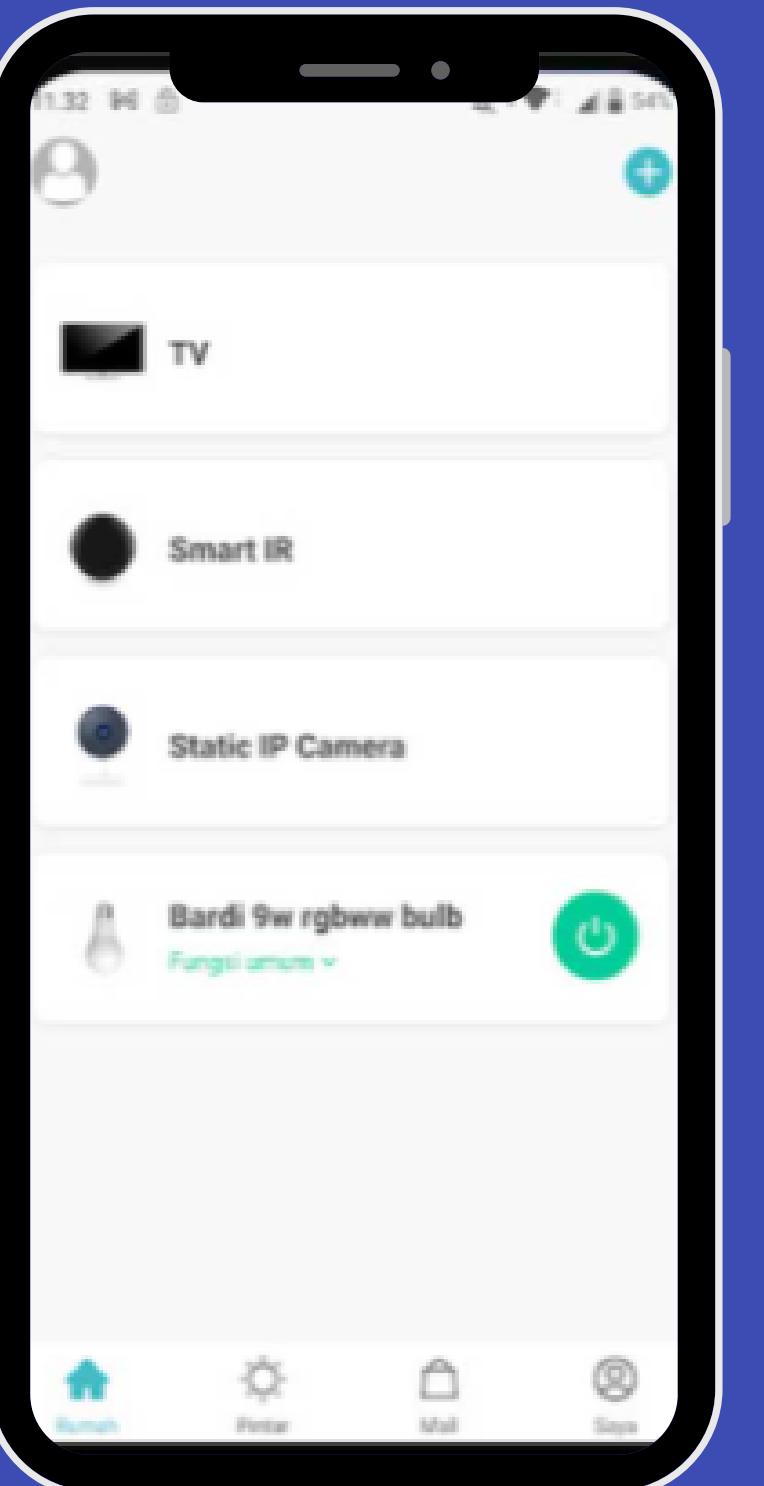
4. Promotion and Sales

- Digital Campaigns: SEO, PPC, social media.
- Industry Events: Trade shows, conferences.
- Special Promotions: Discounts and bundled.

COMPARISON TO SIMILAR APP



LuminaSense



Bardi Smart Home Indonesia

Similarity
percentage

30%

LuminaSense offers a memory-efficient solution that still provides an advanced and responsive lighting automation experience, unlike Bardi which may have a broader range of features but uses more memory.



YOUR ROADMAP

1

Enhanced Presence
Detection (Current)

Implement and refine the Human Presence Monitoring System Using Cameras for Light Automation

2

Security Integration

Expand functionalities to include basic security features
Motion detection for unauthorized access alerts

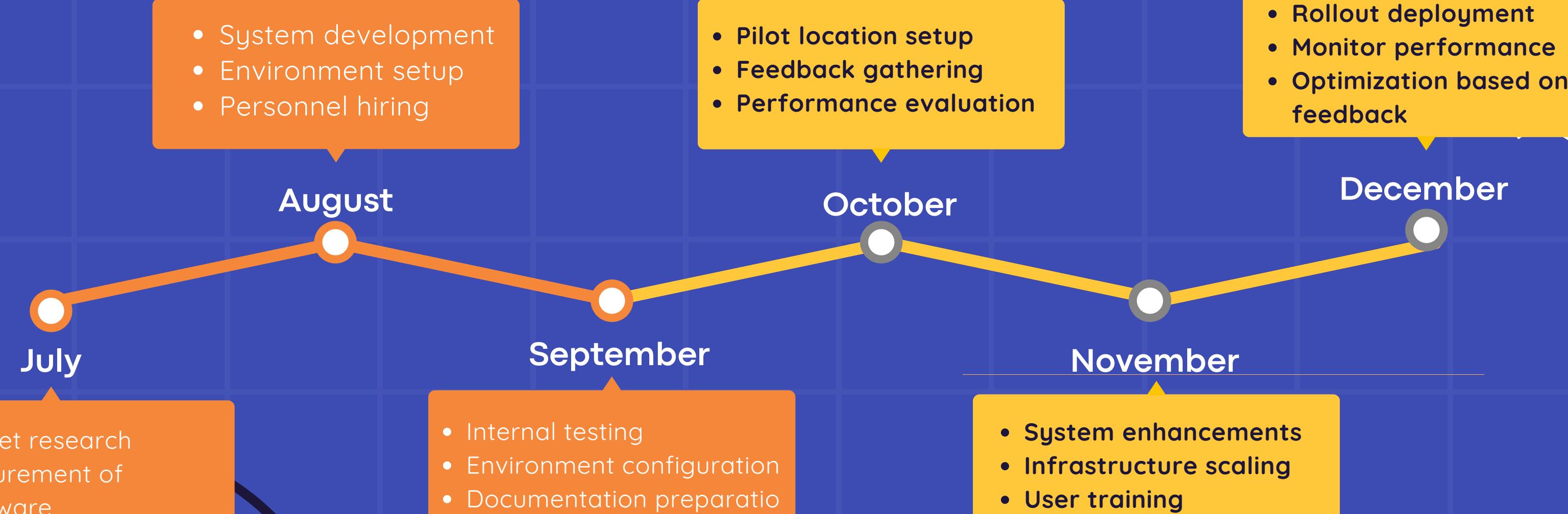
3

Advanced Facial
Recognition

Incorporate facial recognition technology for enhanced security and personalized automation



Project Milestone For 2024





Budget Allocation

Category	Budget (IDR)
Team Salary	470,000,000
Marketing	25,000,000
Operational	35,000,000
Product Development & Research	85,000,000
Other Expenses	15,000,000
TOTAL	630,000,000



Budget Allocation (Team Salary)

Personnel	Description	Number	Budget (IDR)
Project Manager	160 hours/month/person	1	60,000,000
Mobile Kotlin Developer	160 hours/month/person	2	100,000,000
Machine Learning Specialist	160 hours/month/person	1	80,000,000
UI/UX Designer	160 hours/month/person	1	50,000,000
Marketing Specialist	160 hours/month/person	1	40,000,000
Cloud Computing Specialist	160 hours/month/person	1	30,000,000
Security Specialist	160 hours/month/person	1	30,000,000
Implementation Team	160 hours/month/person	2	80,000,000
TOTAL			470,000,000



Budget Allocation

Marketing

Item	Budget (IDR)
Marketing Campaigns	15,000,000
Promotional Materials	10,000,000

Operational

Budget (IDR)	Budget (IDR)
Purchase/Rental of Equipment	20,000,000
Cloud Infrastructure	15,000,000
Google Colab Pro Subscription (6 months)	0 (included in Cloud Infrastructure)
Google Workspace Business Starter Subscription (6 months)	0 (included in Cloud Infrastructure)



Budget Allocation

Product Development & Research

Budget (IDR)	Budget (IDR)
System Development	50,000,000
Research and Testing	30,000,000
Artificial Intelligence Integration	5,000,000

Other Expenses

Budget (IDR)	Budget (IDR)
Taxes	3,000,000
Reserves	7,000,000
Unexpected Expenses	5,000,000



SWOT ANALYSIS OF THE PROJECT

1

Strengths

In terms of energy efficiency, the LumaSense app automates the lights by detecting human presence, so the lights only turn on when needed. This helps reduce energy waste.

2

Weaknesses

There are problems if there is a network connection problem because the ESPCam32 camera is connected to WiFi. Apart from that, the camera's range of capturing objects in a room can be limited (blind spot), depending on the position of the camera

3

Opportunities

The growth of the smart home market opens up opportunities for integration and use of this technology in various household applications. Additionally, more and more people are becoming aware of the importance of energy efficiency, creating huge opportunities for the adoption of this technology.

4

Threats

The large number of similar products on the market can increase competition and reduce prices.



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