



Budget

ImoleDe: Smart Solar Energy Device and Management System

Smart Systems Research Group

Principal Investigator: Prof. (Mrs) Folasade M. Dahunsi

Computer Engineering Department,

Federal University of Technology, Akure

PMB 704, Akure-Owo Express Way, Akure, Ondo State

Phone No: 08101564160; Email Address: fmdahunsi@futa.edu.ng

Budget for ImoleDe: Smart Solar Energy Device and Management System

ImoleDe Smart Solar Energy Device and Management System is designed to optimize solar inverter system performance and extend system longevity through intelligent energy management techniques. This innovative product combines real-time remote monitoring, intelligent load prioritization, and smart control using sensors, a mobile application, and AI algorithms, with the goal of enhancing the user experience and ensuring reliable power management in solar installations. 480.5 million Naira (Four Hundred and Eighty Million, Five Hundred Thousand Naira) is needed to transform our product ImoleDe from prototype to full-scale production and get-to-the market ready products. It will also be used to kick-off the company and run it for 3 years. It's the comprehensive costs associated with running a company, including fixed, variable, direct, and indirect costs for three (3) years.

The budget includes, personnel / human capital, technology development (TRL 6–9), operations / infrastructure, go-to-market strategy, monitoring and evaluation, tools and equipment, contingency, and development and sales of 500 Devices. Table 1 presents a summary of the budget, Table 2, the timelines, outlining the milestones and descriptions. Tables 3 - 10 presents the detailed budgets.

a. Personnel / Human Capital Resources

Covers salaries, consultants, and technical experts through TRL 6–9, go-to-market (GTM) and development and sales of the first 5,000 devices. Technology Development (TRL 6 → 9)

b. Operations and Infrastructure

Covers the foundational resources needed to run the project efficiently. Includes office facilities, logistics, utilities, IT systems, cloud hosting, and day-to-day operational costs that support the team and technology.

c. Go-to-Market (GTM) and Commercialization

The strategy and actions taken to introduce the product to the market and customers. Encompasses market research, branding, partnerships, marketing campaigns, distribution channels, salesforce setup, and customer support structures.

d. Monitoring, Evaluation and Compliance

Ensures the project is tracked, assessed, and aligned with standards. Includes collecting performance data, conducting audits/evaluations, generating reports, and complying with regulations or certifications. Helps prove effectiveness and attract investors/funders

Tools and Equipment

Refers to the physical and digital resources required for development and operations. Examples: laptops, testing kits, manufacturing tools, servers, sensors, and specialized lab or field equipment.

Device Development and Deployment

Specific to building and rolling out the five hundred (500) devices under Imolede. Covers manufacturing, assembly, testing, packaging, logistics, and distribution to users. Ensures devices are ready for adoption in real-world environments.

Contingency

A reserved budget (buffer) for unforeseen costs such as inflation, regulatory changes, equipment failure, or delays.

Table 1: ImoleDe Budget Breakdown (₦480.5 Million / 3 Years)

| Category | Allocation (%) | Amount (₦ Million) | Ccomment |
|--------------------------------------|-----------------------|--------------------|---|
| Personnel / Human Capital | 20% | ₦96.10 | Salaries, training, capacity building |
| Technology Development (TRL 6–9) | 10% | ₦48.05 | Prototyping, software, firmware, AI integration |
| Operations / Infrastructure | 10% | ₦48.05 | Office space, utilities, logistics |
| Go-to-Market Strategy | 10% | ₦48.05 | Marketing, partnerships, distribution |
| Monitoring and Evaluation | Fixed (5%) | ₦15.00 | Impact tracking, reporting, audits |
| Tools and Equipment | 20% | ₦96.10 | IoT hardware, testing tools, lab equipment |
| Contingency | Fixed (5%) | ₦15.50 | Risk buffer, unforeseen expenses |
| Development and Sales of 500 Devices | 20% | ₦96.10 | Manufacturing, assembly, packaging |
| Total | ₦480.5 Million | | |

This structure ensures balanced investment across technical development, human capital, market readiness, and risk management.

Timeline and Metrics

The budget ties to the Timeline and Metrics presented in the business plan. The Timelines outlines the schedule and phases of implementation. They show when key activities, deliverables, and milestones are expected to happen in Table 2. Timelines help ensure the project stays on track and stakeholders know what to expect at each stage. The Metrics are the measurable indicators used to track ImoleDe’s success and

progress. These include outputs (e.g., number of users onboarded, retention rate, systems deployed), outcomes (e.g., adoption rate, engagement level, satisfaction score), and impact (e.g., cost savings, efficiency improvements, or learning outcomes). Metrics make it possible to evaluate whether ImoleDe is meeting its goals. The timeline and metrics can be implemented with the budget in Table 1.

Table 2: The implementation timeline, outlining the milestones and descriptions

| Year | Quarter | Milestone | Description |
|--------|---------|---------------------------|--|
| Year 1 | Q1 | TRL 6 Validation | Complete prototype testing in operational environment |
| Year 1 | Q1 | Design Refinement | Incorporate feedback and improve system reliability |
| Year 1 | Q2 | Certification Preparation | Initiate compliance and regulatory certification processes |
| Year 1 | Q2 | TRL 7 Achievement | Demonstrate system performance in relevant environment |
| Year 1 | Q3 | Certification Completion | Obtain necessary certifications for market entry |
| Year 1 | Q3 | TRL 8 Validation | Complete integration and demonstration in final form |
| Year 1 | Q4 | Market Entry | Launch product in target market with initial sales |
| Year 1 | Q4 | Customer Acquisition | Begin onboarding early adopters and partners |
| Year 1 | Q4 | TRL 9 Achievement | Proven system through successful mission operations |
| Year 2 | Q1, Q2 | Sales Growth | Expand sales channels and increase customer base |
| Year 2 | Q3, Q4 | Market Penetration | Strengthen brand presence and user adoption |
| Year 2 | Q1-Q4 | International Expansion | Explore new markets and strategic partnerships |

The detailed budget for each subcategory of the budget including: personnel / human capital, technology development (TRL 6–9), operations / infrastructure, go-to-market strategy, monitoring and evaluation, tools and equipment, contingency, and development and sales of 500 Devices are presented in Tables 3-10.

Table 3: Personnel / Human Capital Budget

| Category | Total (₦) | Year 1 (₦) | Year 2 (₦) | Year 3 (₦) |
|--|--------------------|------------|------------|------------|
| Core Team (Project Manager, Tech Lead, Data Lead, Product Designer, Admin) | 35,999,060 | 11,999,687 | 11,999,687 | 11,999,686 |
| Software Engineers (x3) | 23,996,170 | 7,998,724 | 7,998,723 | 7,998,723 |
| Hardware Engineers (x3) | 18,009,140 | 6,003,047 | 6,003,047 | 6,003,046 |
| Specialist Consultants (Regulatory, IP, Compliance) | 5,996,640 | 1,998,880 | 1,998,880 | 1,998,880 |
| Support Staff | 6,054,300 | 2,018,100 | 2,018,100 | 2,018,100 |
| Training and Capacity Building | 6,054,300 | 2,018,100 | 2,018,100 | 2,018,100 |
| Total | ₦96,100,000 | | | |

Table 4: Technology Development (TRL 6–9) Budget

| Category | Total (₦) | Year 1 (₦) | Year 2 (₦) | Year 3 (₦) |
|---|--------------------|------------|------------|------------|
| Advanced Prototype Build (TRL 6–7) | 15,006,015 | 5,002,005 | 5,002,005 | 5,002,005 |
| Pilot Testing and Validation (TRL 7–8) | 13,055,185 | 4,351,729 | 4,351,728 | 4,351,728 |
| Certification, Standards and Compliance (TRL 8–9) | 9,999,205 | 3,333,069 | 3,333,068 | 3,333,068 |
| Tech Maintenance and Upgrades | 9,994,400 | 3,331,467 | 3,331,467 | 3,331,466 |
| Total | ₦48,050,000 | | | |

Table 5: Operations / Infrastructure Budget

| Category | Total (₦) | Year 1 (₦) | Year 2 (₦) | Year 3 (₦) |
|------------------------------|--------------------|------------|------------|------------|
| Office, Utilities, Logistics | 17,999,530 | 5,999,844 | 5,999,843 | 5,999,843 |
| Cloud Hosting and Servers | 6,001,445 | 2,000,482 | 2,000,482 | 2,000,481 |
| Logistics and Transport | 11,998,085 | 3,999,362 | 3,999,362 | 3,999,361 |
| Security and Maintenance | 12,050,940 | 4,016,980 | 4,016,980 | 4,016,980 |
| Total | ₦48,050,000 | | | |

Table 6: Go-to-Market Budget

| Category | Total (₦) | Year 1 (₦) | Year 2 (₦) | Year 3 (₦) |
|---|--------------------|------------|------------|------------|
| Market Research and Entry Strategy | 19,998,410 | 6,666,137 | 6,666,137 | 6,666,136 |
| Branding, Design, and Digital Marketing | 8,000,325 | 2,666,775 | 2,666,775 | 2,666,775 |
| Distribution Channels and Partnerships | 9,999,205 | 3,333,069 | 3,333,068 | 3,333,068 |
| Sales Force Development | 5,026,030 | 1,675,344 | 1,675,344 | 1,675,343 |
| Customer Engagement and Support | 5,026,030 | 1,675,344 | 1,675,344 | 1,675,343 |
| Total | ₦48,050,000 | | | |

Table 7: Monitoring and Evaluation Budget

| Category | Total (₦) | Year 1 (₦) | Year 2 (₦) | Year 3 (₦) |
|------------------------------|--------------------|------------|------------|------------|
| Impact Assessment Tools | 4,999,500 | 1,666,500 | 1,666,500 | 1,666,500 |
| Data Collection and Analysis | 4,000,500 | 1,333,500 | 1,333,500 | 1,333,500 |
| Reporting and Audits | 6,000,000 | 2,000,000 | 2,000,000 | 2,000,000 |
| Total | ₦15,000,000 | | | |

Table 8: Tools and Equipment Budget

| Category | Total (₦) | Year 1 (₦) | Year 2 (₦) | Year 3 (₦) |
|-------------------|--------------------|------------|------------|------------|
| IoT Hardware | 30,012,030 | 10,004,010 | 10,004,010 | 10,004,010 |
| Testing Equipment | 19,998,410 | 6,666,137 | 6,666,137 | 6,666,136 |
| Lab Setup | 19,998,410 | 6,666,137 | 6,666,137 | 6,666,136 |
| Software Licenses | 26,091,150 | 8,697,050 | 8,697,050 | 8,697,050 |
| Total | ₦96,100,000 | | | |

Table 9: Contingency Budget

| Category | Total (₦) | Year 1 (₦) | Year 2 (₦) | Year 3 (₦) |
|----------------------|--------------------|------------|------------|------------|
| Legal and Compliance | 5,000,300 | 1,666,767 | 1,666,767 | 1,666,766 |
| Emergency Repairs | 5,000,300 | 1,666,767 | 1,666,767 | 1,666,766 |
| Miscellaneous Buffer | 5,499,400 | 1,833,134 | 1,833,133 | 1,833,133 |
| Total | ₦15,500,000 | | | |

Table 10: Development of 500 Devices Budget

| Category | Total (₦) | Year 1 (₦) | Year 2 (₦) | Year 3 (₦) |
|----------------------------|--------------------|------------|------------|------------|
| Component Procurement | 39,996,820 | 13,332,274 | 13,332,273 | 13,332,273 |
| Assembly and Packaging | 30,012,030 | 10,004,010 | 10,004,010 | 10,004,010 |
| Quality Assurance | 9,994,400 | 3,331,467 | 3,331,467 | 3,331,466 |
| Logistics and Distribution | 16,096,750 | 5,365,584 | 5,365,583 | 5,365,583 |
| Total | ₦96,100,000 | | | |