

Kindly find the commercialization cost estimate for the Development of a Microcontroller-based wireless pulse oximeter for COVID-19 Detection and beyond

**Table 1: Cost Breakdown for Commercialization Purpose**

<b>Category/Type</b>	<b>Description</b>	<b>Estimated Cost (₦)</b>	<b>Purpose/Justification</b>
<b>1. Engineering Product design</b>	<b>a.</b> Final hardware redesign. <b>b.</b> Mass-prototype refinement. <b>c.</b> Finished Industrial casing. <b>d.</b> Firmware enhancement/optimization	<b>a.</b> 1,000,000 <b>b.</b> 3,900,000 <b>c.</b> 900,000 <b>d.</b> 700,000	<b>a.</b> To ensure medical accuracy. <b>b.</b> To upgrade prototype to production-grade version. <b>c.</b> To ensure durability and medical accuracy
<b>2. Assembly and Production set-up</b>	<b>a.</b> Purchasing of tools for assembly purpose. <b>b.</b> Putting together soldering/rework stations <b>c.</b> Leasing of SMT machine quality control tools	<b>a.</b> 4,500,000 <b>b.</b> 1,500,000 <b>c.</b> 2,000,000	<b>a.</b> To enhance the setup of small-scale assembly line for over 1,000 devices.
<b>3. Procurement of components and materials</b>	<b>a.</b> Order and Purchasing of Sensors (MAX30100/alternative) <b>b.</b> Mass purchase of microcontrollers <b>c.</b> Order and purchase of Zigbee/Wi-Fi modules <b>d.</b> Purchase of PCBs, batteries, casings	<b>a.</b> 4,500,000 <b>b.</b> 2,500,000 <b>c.</b> 1,400,000 <b>d.</b> 1,600,000	<b>a.</b> To carry out bulk purchase for pilot production of over 1,000 to 1,500 units.
<b>4. Certification, calibration and testing process</b>	<b>a.</b> Standard Organization of Nigeria (SON) quality certification. <b>b.</b> NAFDAC Registration <b>c.</b> Clinical validation trials	<b>a.</b> 500,000 <b>b.</b> 900,000 <b>c.</b> 600,000	<b>a.</b> To ensure the process of carrying out market authorization. <b>b.</b> To enable compliance with international health standards
<b>5. Integration of cloud and software</b>	<b>a.</b> Securing cloud storage <b>b.</b> Build up of data analytics dashboard.	<b>a.</b> 2,500,000 <b>b.</b> 3,000,000	<b>a.</b> To ensure/optimize data visualization

	c. Development of patient monitoring app.	c. 1,000,000	b. To enable remote health monitoring. c. To ensure a scalable IoT future.
<b>6. Branding and Packaging</b>	a. Designing of prototype b. High standard Labeling c. Designing and duplication of instruction manuals d. Production of Packaging materials	a. 500,000 b. 200,000 c. 500,000 d. 300,000	a. To carry out standardization b. To carry out branding that is appealing to the consumer.
<b>7. Marketing &amp; Publicity</b>	a. For Product launching event. b. For carrying out promotional videos. c. For social media activities and medical exposition	a. 1,000,000 b. 1,000,000 c. 1,000,000	a. To carry out Awareness campaigns. b. To carry out follow-up/adoption campaign that targets hospitals, clinics, and NGOs
<b>8. Product Distribution and Logistics process</b>	a. For transportation purposes b. For warehousing of products. c. Distribution of products to health facilities nationwide	a. 500,000 b. 1,500,000 c. 500,000	a. To ensures a flexible process of product availability across target regions all over Nigeria.
<b>9. Personnel awareness seminars and Training</b>	a. This include technical staff. b. This include engineers of all practices c. This include administrative team heads and members training of sales agents all over Nigeria.	a. 1,500,000 b. 1,000,000 c. 1,500,000	a. To ensure 6–9 months of deliberate staffing and capacity building in preparation for the commercialization phase of the project.
<b>10. Legality and intellectual proprietorship</b>	a. For the purpose of patent filing	a. 500,000 b. 200,000	a. To ensure the protection of intellectual property

	b. For carrying out trademark registration  c. For carrying out legal consultancy	c. 300,000	b. To ensure proper legal compliance
<b>11. Maintenance action of products and Support Infrastructure buildup</b>	a. For carrying out customer service setup  b. For getting after-sales technical product support tools  c. For getting spare parts/Components	a. 500,000  b. 500,000  c. 500,000	a. To ensure  b. To ensure product reliability  c. Planning for post-deployment maintenance
<b>12. Planning for contingencies / Risk Management planning</b>	a. Making 5% reservation plan for inflation  b. Planning for possible component price fluctuation.  c. Planning for unforeseen expenses as regards the product	a. 1,000,000  b. 1,450,000  c. 1,500,000	a. Carrying out financial cushion against project risks and the likes.
<b>TOTAL ESTIMATED COST</b>		<b>₦49,950,000</b>	