Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Engineering & Technology** **Department of Information and Communication Technology**	
Subject: CP		
Exp-2	**Date:23-09-25**	**Enrollment No:92200133007**

Ideation and Stakeholder Needs Analysis

1. Stakeholder Identification

The primary stakeholders for the proposed web application include:

- **Electrical Businesses and Distributors**: Require efficient product management, real-time availability, and streamlined ordering.
- **Industrial Contractors and Engineers**: Need accurate technical specifications and quick access to 3-phase electrical items for projects.
- **Retail Customers and SMBs**: Seek transparency in pricing, easy product comparisons, and reliable delivery.
- **System Administrators**: Require robust backend management with inventory tracking and user management features.

2. Needs Analysis

Based on industry reports and market studies:

- **Real-time inventory and availability** are critical for businesses (Gartner, 2023).
- **E-commerce adoption in B2B electrical supply** is projected to grow at 18% CAGR through 2030 (McKinsey, 2022).
- **Customization of search and filters** (by voltage, current ratings, brand) improves user decision-making (IEEE Xplore, 2021).
- **Secure digital platforms** are demanded due to rising cybersecurity concerns in industrial procurement (ACM, 2022).
- **User-friendly UI and mobile optimization** are essential, as over 65% of B2B buyers prefer mobile-first browsing (Statista, 2023).

(Sources: IEEE Xplore, ACM Digital Library, Gartner Reports, McKinsey Industry Reports, Statista B2B Commerce Study.)

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3. Problem Statement

Despite the growing demand for industrial and commercial electrical components, **stakeholders lack a domain-specific digital platform tailored for 3-phase electrical items**. Existing generic e-commerce platforms do not address technical specifications, compatibility filters, or real-time inventory, resulting in inefficiencies and lost business opportunities.

4. Solution Ideation

The project proposes **three creative ICT-driven solutions**:

1. **Web Application with Advanced Product Filtering**
   - Integrates voltage, current capacity, and load specification filters.
   - Ensures stakeholders can quickly locate products that meet their exact project needs.
   - ICT Alignment: Web technologies (React, Node.js, MySQL) with scalable cloud deployment.
2. **Smart Recommendation System (Phase 2 Extension)**
   - AI/ML-powered product recommendation engine suggesting alternatives based on user behavior and industry standards.
   - Enhances personalization and reduces decision-making time.
   - ICT Alignment: AI/ML integration for user-centric analytics.
3. **Secure Role-Based Access System**
   - Provides distinct interfaces for customers, distributors, and administrators.
   - Implements modern authentication (JWT, OAuth2) and encrypted data handling.
   - ICT Alignment: Cybersecurity principles integrated into web platforms.

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5. Relevance to ICT Domain

This project aligns with **Web Application Development, Cloud Computing, AI/ML integration, and Cybersecurity** within the ICT domain.

- **Web/Cloud Trends**: Digital commerce and SaaS platforms for B2B industries are rapidly expanding.
- **AI/ML Relevance**: Personalized product suggestions improve customer satisfaction and increase adoption.
- **Cybersecurity Relevance**: Ensures stakeholder trust through compliance with data privacy and secure digital practices.

By addressing **stakeholder-driven needs** with ICT innovations, the proposed project enhances efficiency, transparency, and competitiveness in the electrical supply sector.