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| Marwadi University<br>Marwadi Chandarana Group<br>NAAC A+ | **Marwadi University**<br>**Faculty of Engineering & Technology**<br>**Department of Information and Communication Technology** | |
| **Subject: CP** | | |
| **Exp-7** | **Date:23-09-25** | **Enrollment No:92200133007** |

# 1. Novel Approach

## Unique System Design

- **Specialized Domain Integration:** Unlike generic e-commerce platforms, the system is purpose-built for **3-phase electrical products**, incorporating structured product taxonomies (voltage, phase rating, capacity, and compatibility metadata).
- **Cloud-Native Deployment:** Leveraging **Vercel's serverless architecture**, the solution demonstrates modern cloud integration principles, ensuring **global accessibility, auto-scaling, and high availability**.
- **Monitoring and Reliability:** Incorporation of monitoring tools (e.g., Vercel Analytics, UptimeRobot) directly in deployment—rarely implemented in SME-focused digital platforms.

## Creative ICT Solution

- A **scalability-first design** with modular architecture (React frontend, Node.js backend, MySQL database, cloud hosting).
- Potential for **integration with IoT-enabled energy meters or inventory sensors** in future iterations, bridging industrial IoT with web commerce.
- Standardized **technical documentation, testing, and monitoring workflows**, positioning it as an ICT-engineered product rather than a mere website.

# 2. Comparison with Existing Solutions

| Criteria | Existing E-commerce Platforms | Proposed System |
|---|---|---|
| Domain Customization | Generic product categories | Domain-specific: 3-phase electrical standards |
| Deployment | Often limited to SaaS-based hosting | Fully cloud-native via Vercel, Git-integrated |
| Monitoring | Basic analytics only | Uptime, performance, error tracking dashboards |
| Scalability | Manual scaling or costly enterprise tier | Auto-scaling serverless architecture |
| ICT Alignment | Business-centric | ICT project-level standards: architecture diagrams, testing, modular coding |

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# 3. Contribution to ICT Field

## Advancing ICT Practices

- **Practical Demonstration of Cloud-Native ICT Deployment:** The system showcases how SMEs in industrial domains can adopt **serverless cloud-first solutions**, reducing costs and improving resilience.
- **Template for Specialized E-commerce:** Provides a scalable blueprint for other niche industries (e.g., medical equipment, renewable energy components).
- **Bridging ICT and Industrial Applications:** Demonstrates how **ICT engineering principles**—monitoring, modular coding, testing, and scalability—can transform traditional industries.

## Impact on Stakeholders

- **End-Users (Businesses/Technicians):** Easier access to industrial-grade components, reducing downtime in operations.
- **Businesses:** Digital transformation at lower costs, improved supply chain visibility.
- **Researchers/Academia:** Framework can serve as a teaching case for ICT-driven domain innovation.

## Context in ICT Trends

This project aligns with global ICT trends such as:

- **Industry 4.0 and Smart Manufacturing.**
- **Serverless Computing for SMEs.**
- **Niche E-commerce Digitalization.**