
 Marwadi University <small>Marwadi Chandarana Group</small> 	Marwadi University Faculty of Engineering & Technology Department of Information and Communication Technology	
Subject: CP		
Exp-8	Date:23-09-25	Enrollment No:92200133007

1. Technical Report

System Overview

The system is a **web application for 3-phase electrical items**, built using a **modular architecture**:

- **Frontend:** React.js (user interface, product browsing, cart management).
- **Backend:** Node.js + Express (API layer, request handling).
- **Database:** MySQL (product catalog, user management, transactions).
- **Deployment:** Vercel cloud (serverless hosting, global availability).

Key Implementation Highlights

- **Clean Code Practices:** Modularized React components, RESTful API endpoints, and SQL schema normalization.
- **Scalability:** Serverless deployment allows automatic scaling based on traffic.
- **Monitoring:** Uptime and performance metrics tracked through Vercel Analytics.
- **Security:** Input validation, environment variables for credentials, and HTTPS deployment.

Outcomes

- A **functional prototype** accessible online (via Vercel link).
- **Improved accessibility** for industrial buyers with domain-specific filters (e.g., voltage, phase, motor capacity).
- **Testing:** Unit tests (frontend components & backend APIs) and integration testing for API–DB communication.

2. User Manual



Getting Started

1. Open the deployed application at: **[Vercel URL]**.
2. Create an account or log in.
3. Browse products by category (e.g., Motors, Switchgear, Transformers).
4. Add desired items to the cart.
5. Proceed to checkout and confirm order.

Primary Use Case

Example: A factory technician needs a **440V 3-phase motor**.

- Search/filter for “440V motor.”
- Compare product specifications.

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- Add selected item to cart and place the order.

Troubleshooting

- **Page not loading:** Refresh or check internet connection.
- **Login error:** Ensure correct username/password; reset password if needed.
- **Product not showing:** Use search bar or check category filters.

3. Code Documentation

Code Structure

```



/project-root
├── /frontend (React.js)
│   ├── /components (UI components: Navbar, ProductCard, Cart)
│   ├── /pages (Home, Products, Checkout)
│   ├── App.js (main React app)
│   └── package.json (frontend dependencies)
├── /backend (Node.js + Express)
│   ├── /routes (API endpoints: /products, /users, /orders)
│   ├── /models (DB models: Product, User, Order)
│   ├── server.js (main Express server)
│   └── package.json (backend dependencies)
├── /database
│   ├── schema.sql (table definitions: users, products, orders)
│   └── seed.sql (sample data)
└── README.md

```

Dependencies

- **Frontend:** React, Axios, React Router.
- **Backend:** Express, MySQL2, dotenv, cors.
- **Deployment:** Vercel (serverless functions).

Documentation Practices

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- **Inline Comments:**

- React components: JSDoc for props and states.
- Node.js APIs: Function-level comments for request/response.