Design Specification: QR-Based Control Panel Documentation System

1. Objective
Develop a QR-based system linking physical control panels to structured, hosted documentation and data.
Engineers can scan a QR code to instantly access panel-specific files hosted online using GitHub Pages.

2. Target Environment
Designed for field engineers needing fast access to I/O lists, schematics, manuals, and context without login
or complex tools. Intended for use in connected environments with internet access.

3. System Architecture
- Hosting: GitHub Pages (static site)
- Structure: One folder per panel:
  /docs/ (PDFs)
  /data/ (CSVs)
  /ai_context/ (text files)
  /notes/ (markdown)
- Each folder includes index.html with links and AI-ready context block
- QR codes printed and affixed to panels link to these URLs

4. Panel Folder Template
```
/panel-001/
├── index.html
├── docs/
│   ├── wiring_diagram.pdf
│   └── user_manual.pdf
├── data/
│   ├── io_list.csv
│   └── bom.csv
├── ai_context/
│   └── context.txt
└── notes/
    └── service_notes.md
```

5. Key Features
- No login required
- Static hosting with zero runtime cost
- AI-friendly format with prestructured data
- Scalable to many panels
- Works on mobile and desktop browsers

6. Deployment Plan
Phase 1: Build folder and file structure
Phase 2: Create HTML pages for each panel
Phase 3: Upload to GitHub and enable Pages
Phase 4: Generate and print QR codes
Phase 5: Field test and feedback collection

7. Future Extensions
- Optional login/authentication for secure documents
- User can access webpage to edit/update the available documents assigned to each machine. Possibly multiple in the factory.