

Component Diagram - Voice Automation Hub Architecture

Frontend Layer

- React Frontend - Main application UI
- Voice Interface - Voice command input
- Command Builder - Text command input
- Device Control - Device management UI
- History Viewer - Command history display

Backend Layer

- REST API Controller - HTTP endpoint handler
- Command Interpreter - Parses natural language (Interpreter Pattern)
- Command Executor - Executes commands (Visitor Pattern)
- State Manager - Manages device states
- Repository - Stores command history (Repository Pattern)

Data Layer

- Command History - Stores executed commands
- Device States - Current state of all devices
- User Preferences - User-specific settings

Component Relationships:

- Frontend → REST API Controller (HTTP/REST)
- REST API Controller → Command Interpreter (interprets)
- REST API Controller → Command Executor (executes)
- Command Interpreter → Repository (reads context)
- Command Executor → State Manager (updates)
- Command Executor → Repository (saves)
- State Manager → Device States (manages)
- Repository → Command History (stores)
- Repository → User Preferences (stores)