TM Car Diagnostics – Technical Documentation

Overview

TM Car Diagnostics is a web-based application that enables users to diagnose vehicle issues using an OBD-II scanner or manual symptom descriptions. It leverages AI to interpret fault codes and provide actionable insights.

Key Features

- **OBD-II Scanner Integration**: Connects to vehicle scanners to read fault codes.
- **Manual Diagnosis Input**: Users can describe symptoms for AI-powered analysis.
- **Dashboard**: Displays diagnostic results and system status.
- **Code Meanings**: Provides explanations for standard fault codes.
- **History Tracking**: Logs previous diagnoses for reference.

Technical Stack

Layer	Technology Used
Frontend	React.js, Vercel Hosting
Backend	Node.js or serverless functions (assumed)
AI Engine	Likely uses OpenAI or similar NLP model
Data Storage	LocalStorage or cloud database (TBD)
OBD-II Access	Web Bluetooth API or external SDK

User Flow

1. **Home Screen**: Choose between scanner connection or manual input.
2. **OBD-II Scanner**:
    - Connect via Bluetooth or USB.
    - Read and display fault codes.
3. **Manual Input**:
    - Describe the issue in natural language.
    - AI interprets and returns likely causes.
4. **Dashboard**:

- View current diagnosis.
- Access code meanings and history.

Security Considerations

- **Data Privacy**: Ensure user inputs and diagnostic history are stored securely.
- **Bluetooth Permissions**: Prompt users for device access with clear intent.
- **AI Model Safety**: Validate outputs to avoid misleading diagnoses.

Known Limitations

- Requires compatible OBD-II hardware.
- AI accuracy depends on input clarity.
- May not support all vehicle makes/models.

Deployment & Maintenance

- **Hosting**: Vercel (CI/CD enabled)
- **Monitoring**: Use tools like Sentry or LogRocket for error tracking.
- **Updates**: Regularly refresh fault code database and AI model.