User Interaction Layer (Frontend)

- User visits the platform
- Enters crane specifications or selects predefined models
- Compares features, prices, and performance
- Gets recommendations based on ML algorithms
- Can save and download reports

Backend Processing (Firebase & ML Models)

- Processes user input
- Fetches data from Firebase
- ML-based recommendation engine
- Stores user preferences and search history

Database (Firebase Firestore)

- Stores crane data (types, load capacity, price, reviews)
- Stores user interaction history
- Manages authentication & permissions

IoT & Hardware Integration (Optional)

- Sensor data from real cranes for real-time monitoring
- IoT modules (Arduino/Raspberry Pi) collect data
- Data sent to Firebase for analysis

Decision Support System

- Compares crane parameters using analytics
- Provides visualization (charts, graphs)
- Suggests best option based on cost and load capacity