Entertainment Industry Electric Chainhoist Database

A comprehensive database and management system for electric chainhoists used in the entertainment industry. This project includes data scraping tools, processing utilities, and a web-based viewer application.

Project Overview

This system consists of three main components:

1. **Data Scraper** - Collects chainhoist specifications from manufacturer websites
2. **Data Processor** - Cleans, normalizes, and enhances the collected data
3. **Database Viewer** - Web application for searching, viewing, and comparing chainhoist models

System Requirements

- Node.js (v16.0.0 or higher)
- NPM (v7.0.0 or higher)
- Modern web browser

Installation

1. Clone this repository or download all the files to your local machine
2. Navigate to the project directory
3. Install dependencies:

```bash
npm install
```

Usage

Data Collection

To scrape data from manufacturer websites:

```bash
npm run scrape
```

This will create a `chainhoist_data` directory and store the scraped data in JSON and CSV formats. The scraper is configured to collect data from:

- Columbus McKinnon (CM/Lodestar)

- Chainmaster
- Verlinde (Stagemaker)
- Movecat
- GIS AG

You can modify the `manufacturers` array in `chainhoist-scraper.js` to add or remove manufacturers.

Data Processing

To clean and normalize the collected data:

```bash
npm run process
```

This will:

1. Process all records in the database
2. Normalize specifications (load capacities, speeds, power ratings)
3. Standardize terminology and classifications
4. Generate data quality reports
5. Export the processed data to `chainhoist_data_processed` directory

Database Viewer

To start the web-based database viewer:

```bash
npm run serve
```

The application will be available at http://localhost:3000

The viewer provides:

- Search functionality
- Filtering by manufacturer, capacity, and classification
- Detailed product pages
- Side-by-side comparison of models
- Visual statistics and reports

Complete Build Process

To execute the entire pipeline (scrape, process, and serve):

```bash
npm run build && npm start
```

Data Structure

The database captures comprehensive information for each chainhoist model:

Basic Information

- Manufacturer
- Model Name/Number
- Series/Product Line
- Year Introduced
- Production Status

Technical Specifications

- Load Capacity
- Lifting Speed
- Chain Fall Configuration
- Motor Power
- Duty Cycle Rating
- Voltage Options
- Control System Compatibility

Entertainment-Specific Features

- Industry Classification (D8, D8+, BGV-C1)
- Quiet Operation Features
- Position Feedback Options
- Approval for Dynamic Lifting
- Approval for Lifting Over People

Safety Features

- Limit Switches
- Overload Protection
- Emergency Stop Features
- Certifications & Compliance

Commercial Information

- Pricing
- Warranty Information
- Support & Service Options

Customization

Adding New Manufacturers

To add new manufacturers to the scraper:

1. Open `chainhoist-scraper.js`
2. Add a new entry to the `manufacturers` array with:
   - name: Manufacturer name
   - baseUrl: Main website URL
   - startUrls: Array of URLs to start scraping from
   - productListSelector: CSS selector for product links
   - dataExtractors: Object mapping fields to CSS selectors and transformers

Modifying Database Fields

To add or modify database fields:

1. Update the `SCHEMA` object in `chainhoist-data-processor.js`
2. Add corresponding extractors in the scraper
3. Update the viewer templates in the `views` directory

Future Enhancements

Planned improvements include:

- User accounts and personal collections
- PDF export functionality
- Integration with rental inventory systems
- API for accessing the database programmatically
- Mobile application for field reference

Contributing

Contributions to expand the database and improve the tools are welcome! Please consider:

1. Adding more manufacturers and models

2. Improving data extraction accuracy
3. Enhancing the web interface
4. Adding new features to the comparison tools

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