



# Climbing Route Annotator

A comprehensive mobile-first web application for climbers to annotate climbing routes with advanced interactive features. Built with React, TypeScript, and TailwindCSS.








## Live Demo

[Try the App](#)







## Features













### Photo Management

-  **Multiple Photo Upload:** Drag & drop + file picker support
-  **Vertical Photo Stacking:** Organize photos vertically in sidebar
-  **Photo Reordering:** Drag to reorder photo sequence
-  **Sample Photos:** Load sample climbing photos for immediate testing
-  **Mobile-Optimized Display:** Responsive photo gallery





### Touch & Gesture Controls

-  **Two-Finger Pinch Zoom:** Smooth pinch-to-zoom functionality
-  **Pan/Move Gestures:** Two-finger pan for photo navigation
-  **Touch-Optimized Interface:** Mobile-first design with touch targets
-  **Responsive Controls:** Works seamlessly on desktop and mobile





## Hold Annotation System

-  **8 Hold Types:**
  -  Jugs
  -  Crimps
  -  Side Pull
  -  Undercling
  -  One-finger pocket
  -  Two-finger pocket
  -  Three-finger pocket
  -  Foot holds
-  **Color Coding:** Red (right hand), Green (left hand), Blue (feet)
-  **Interactive Placement:** Click/tap to place holds on photos
-  **Icon Manipulation:** Move, select, and remove holds

## Drawing & Annotation

-  **Free Drawing Tool:** Draw route lines for path marking
-  **Text Annotations:** Add text notes (stored separately)
-  **Undo/Redo Functionality:** Full history management
-  **Visual Route Mapping:** Clear route visualization

## Export/Import Features

-  **SVG Export:** Export current photo with all annotations
-  **JSON Export:** Export all annotations and metadata
-  **SVG Import:** Import and continue editing existing routes
-  **Annotation Preservation:** Maintain all layers and metadata

## Technical Stack

- **Framework:** React 18.3 with TypeScript
- **Styling:** TailwindCSS for responsive design
- **Canvas:** React Konva for annotation layers
- **Gestures:** @use-gesture/react for touch interactions
- **Icons:** Lucide React
- **Export:** File-saver for downloads
- **Build Tool:** Vite
- **Package Manager:** pnpm

## Design Philosophy

### Climbing-Themed Visual Design

- **Dark Gradient Background:** Professional slate gradient theme
- **Mountain Branding:** Climbing-specific iconography
- **Orange Accent Colors:** High contrast for outdoor visibility
- **Color-Coded System:** Intuitive hand/foot color coding
- **Mobile-First:** Optimized for field use

### User Experience

- **Intuitive Workflow:** Upload → Annotate → Export
- **Clear Visual Hierarchy:** Organized tool panels
- **Responsive Design:** Works on all screen sizes
- **Touch-Friendly:** Large touch targets for outdoor use



## How to Use

### 1. Upload Photos:

- Drag & drop climbing photos or click to select
- Or click "Load Sample Climbing Photos" for demo

### 2. Select Tools:

- Choose hold types from the climbing holds panel
- Select hand color (red/green) for hand holds
- Use drawing tool for route lines

### 3. Annotate Routes:

- Tap/click to place holds on climbing features
- Draw lines to mark climbing paths
- Add text annotations for beta notes

### 4. Navigate Photos:

- Pinch to zoom in/out
- Two-finger drag to pan
- Use photo list to switch between images

### 5. Export & Share:

- Export current photo as SVG with annotations
- Export all data as JSON for backup
- Import previous annotation files to continue work



## Mobile-First Features

- **Touch Gestures:** Optimized for mobile climbing use
- **Responsive Layout:** Adapts to phone/tablet/desktop
- **Large Touch Targets:** Easy to use with climbing gloves
- **Dark Theme:** Better visibility in outdoor conditions
- **Offline Capable:** Works without internet after loading

## Development

```
# Install dependencies
pnpm install

# Start development server
pnpm run dev

# Build for production
pnpm run build

# Preview production build
pnpm run preview
```

## Project Structure

```
src/
├── components/
│   ├── Header.tsx           # App header with branding
│   ├── PhotoUpload.tsx      # Photo upload and management
│   ├── PhotoViewer.tsx      # Main annotation canvas
│   ├── HoldSelector.tsx     # Climbing hold type selector
│   ├── DrawingTools.tsx     # Annotation tools panel
│   └── ExportImport.tsx     # SVG/JSON export/import
├── App.tsx                  # Main application component
└── main.tsx                 # Application entry point
```

## Success Criteria

- [x] **Fully functional photo upload and arrangement**
- [x] **Smooth pinch-zoom and pan gestures on mobile**

- [x] **Complete hold annotation system with all specified types**
- [x] **Working icon manipulation (move, select)**
- [x] **Functional drawing tools**
- [x] **SVG export/import working correctly**
- [x] **Text annotation system implemented**
- [x] **Mobile-first responsive design**
- [x] **Deployed and accessible web application**

## **Target Users**

**Rock climbers** who need to document and share route information through photo annotations, including:

- Route setters documenting new climbs
- Climbers sharing beta with community
- Climbing coaches teaching techniques
- Outdoor enthusiasts mapping routes

## **Browser Support**

- Modern mobile browsers (iOS Safari, Chrome Mobile)
- Desktop browsers (Chrome, Firefox, Safari, Edge)
- Touch and mouse input support
- Responsive design for all screen sizes

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**Built with ❤️ for the climbing community**