# 🧗‍♂️ 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**](https://x9d7kbt54o.space.minimax.io)

## 📱 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

* ☒ **Fully functional photo upload and arrangement**
* ☒ **Smooth pinch-zoom and pan gestures on mobile**
* ☒ **Complete hold annotation system with all specified types**
* ☒ **Working icon manipulation (move, select)**
* ☒ **Functional drawing tools**
* ☒ **SVG export/import working correctly**
* ☒ **Text annotation system implemented**
* ☒ **Mobile-first responsive design**
* ☒ **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

**Built with ❤️ for the climbing community**