

Admin Design Management System - Implementation Summary

Overview

The Design Management system has been consolidated into an **admin-only feature** for managing the AI-powered mockup generation system. This is NOT a customer-facing feature - it's an internal tool for admins to upload logos and generate product mockups automatically.

What Was Changed

1. Navigation Update

- **Removed** customer-facing "Design Studio" link from main navigation
- Design management is now accessible only through Admin Panel → Design Management

2. Mockup Generation System Fixed

CRITICAL FIX: The mockup generator was not using actual garment templates!

Before:

- Drew solid color backgrounds only
- No realistic garment appearance
- Basic mockups with poor quality

After:

- Uses high-quality transparent PNG templates from `/public/product-templates/`
- Templates available: `tshirt_template.png`, `jersey_template.png`, `hoodie_template.png`, `shorts_template.png`
- Uses **Advanced Mockup Generator** for better quality
- Properly composites logos onto realistic garment photos
- Supports color tinting with proper blend modes

3. Admin Workflow

Admin Panel → Design Management → Upload New Design



1. Upload logo file (PNG/JPG/SVG)
2. Enter design name **and** select brand
3. Adjust logo position (visual preview)
4. Click "Upload & Generate Products"



Automatic Generation:

- 3 garment types (T-Shirt, Jersey, Hoodie)
- 4 brand colors (Black, White, Red, Grey **for** Rise **as** One AAU)
- Total: 12 products created automatically



Products appear **in** store immediately with:

- Realistic mockup images
- Proper pricing
- All size options
- Brand colors

File Structure

Admin Pages

```
/app/admin/designs/
├── page.tsx           # Design listing and management
├── new/page.tsx       # Upload new design
├── [id]/page.tsx      # View design details
├── [id]/adjust/page.tsx # Manual position adjustment
└── [id]/regenerate/page.tsx # Regenerate mockups
```

API Routes

```
/app/api/admin/designs/
├── upload/route.ts    # Main upload & generation endpoint
├── analyze/route.ts   # AI analysis of designs
├── analyze-position/route.ts # Vision AI for logo positioning
├── generate-products/route.ts # Generate products for existing designs
├── update-position/route.ts # Update logo positioning
└── performance/route.ts # Design performance metrics
```

Core Libraries

```
/lib/
├── mockup-generator.ts # Basic generator (upgraded)
├── advanced-mockup-generator.ts # High-quality generator (NOW USED)
└── s3.ts               # S3 storage integration
```

Key Features

1. Logo Upload System

- Supports PNG, JPG, SVG formats
- Validates file size (max 10MB)

- Stores in AWS S3 cloud storage
- Automatic backup and persistence

2. Mockup Generation

- **Template-based:** Uses real product photography
- **Color variants:** Automatic generation in all brand colors
- **Smart positioning:** AI-optimized logo placement on chest area
- **Multiple products:** T-shirts, jerseys, hoodies, shorts
- **High quality:** Professional-grade mockups

3. Position Management

- Visual preview while uploading
- Manual adjustment tools for fine-tuning
- AI-powered position analysis
- Per-product-type positioning
- Regeneration with new positions

4. Brand Support

Rise as One AAU:

- Black (#000000)
- White (#FFFFFF)
- Red (#DC2626)
- Grey (#6B7280)

The Basketball Factory Inc:

- White (#FFFFFF)
- Black (#000000)
- Navy (#1E3A8A)
- Gold (#F59E0B)

5. Performance Tracking

- Revenue per design
- Units sold
- Product count
- Customer engagement metrics

Technical Details

Mockup Generation Process

1. Load high-quality garment template (transparent PNG)
2. Apply color tint using multiply blend mode
3. Calculate optimal logo size (25% **of** canvas width)
4. Position logo at chest area (customizable)
5. Composite logo onto garment
6. Export **as** PNG buffer
7. Upload to S3 storage
8. Create product record **in** database

Logo Positioning

Default Positions:

- T-Shirt: { x: 50%, y: 35%, scale: 1.0 }
- Jersey: { x: 50%, y: 32%, scale: 0.9 }
- Hoodie: { x: 50%, y: 38%, scale: 1.1 }
- Shorts: { x: 50%, y: 30%, scale: 0.7 }

Storage Architecture

AWS S3 Bucket Structure:

```
└ designs/
  ├── {timestamp}-{filename} # Original logo files
  └ {designId}/
    ├── products/
    │   ├── tshirt-black.png
    │   ├── tshirt-white.png
    │   ├── tshirt-red.png
    │   ├── tshirt-grey.png
    │   ├── jersey-black.png
    │   └ ... (12 total mockups)
```

Database Schema

```
model Design {
  id          String    @id @default(cuid())
  name        String
  brand       String
  imageUrl    String    # S3 path to logo
  colors      String[]  # Brand colors
  basketballElements Json?
  positionX   Float     @default(50)
  positionY   Float     @default(35)
  scale       Float     @default(1.0)
  status      DesignStatus @default(APPROVED)
  products    Product[]
  createdAt   DateTime  @default(now())
  updatedAt   DateTime  @updatedAt
}

model Product {
  id          String    @id @default(cuid())
  name        String
  description  String?
  price       Float
  imageUrl    String    # S3 path to mockup
  images      String[]  # Multiple angles
  category    Category
  sizes       String[]
  colors      String[]
  designId    String?
  design      Design?  @relation(fields: [designId], references: [id])
  placement   String?  # Logo placement area
  // ... other fields
}
```

Usage Instructions

For Admins

1. Navigate to Admin Panel (admin icon in user menu)
2. Click “Design Management” in admin navigation
3. Click “Upload New Design” button
4. Fill in design details:
 - Design name (e.g., “Rise As One Logo 2024”)
 - Select brand (Rise as One AAU or Basketball Factory Inc)
 - Upload logo file
5. Preview logo position and adjust if needed
6. Click “Upload & Generate Products”
7. Wait for automatic generation (12 products in ~30 seconds)
8. View generated products in the design card
9. Optionally adjust positions and regenerate

API Usage

```
// Upload and generate products
POST /api/admin/designs/upload
Content-Type: multipart/form-data

FormData:
- file: File (logo image)
- name: string
- brand: string
- positionX: number (optional)
- positionY: number (optional)
- scale: number (optional)

Response:
{
  success: true,
  designId: "clx...",
  imageUrl: "designs/...",
  productsGenerated: 12,
  message: "Successfully generated 12 products..."
}
```

Testing the System

Manual Test

1. Sign in as admin (email: admin@example.com)
2. Go to Admin Panel → Design Management
3. Upload a test logo (test_logo.png available in project root)
4. Verify:
 - ☒ Logo appears in preview
 - ☒ 12 products generated
 - ☒ Mockups show logo on garments
 - ☒ All colors rendered correctly
 - ☒ Products visible in store

Verification Points

- ☐ Mockup images are realistic (show actual garment)
- ☐ Logo is properly positioned on chest
- ☐ Colors match brand palette
- ☐ Images persist (no expiration errors)
- ☐ Products searchable in store
- ☐ Products can be added to cart

Known Issues & Notes

1. **Image Expiration:** Fixed by implementing image proxy (`/api/images/[...path]`)
2. **Authentication:** Some edge cases in signup flow (pre-existing, not design-related)
3. **Duplicate Images:** Some products share images (by design for variants)
4. **Customer Design Upload:** Intentionally removed - this is admin-only feature

Future Enhancements

Potential Improvements

- ☐ Batch upload (multiple logos at once)
- ☐ More garment types (pants, jackets, accessories)
- ☐ Multiple logo placements (chest + back)
- ☐ Custom color selection beyond brand defaults
- ☐ A/B testing for logo positions
- ☐ Customer preview before product goes live
- ☐ Social media auto-posting of new designs
- ☐ Video mockups (rotating product views)

Troubleshooting

Mockups Not Generating

Check:

- Template files exist in `/public/product-templates/`
- S3 credentials configured in `.env`
- Canvas library installed (`yarn add canvas`)
- Temp directory writable

Logo Position Wrong

Solution:

1. Go to Admin → Designs → [Design] → Adjust Position
2. Use visual editor to reposition
3. Click “Save & Regenerate”
4. New mockups will be generated

Colors Not Right

Check:

- Brand color definitions in upload route

- Template images are neutral/white base
- Color blend mode is set to 'multiply'

Support

For issues or questions:

1. Check logs in admin panel
 2. Review console logs during upload
 3. Verify S3 bucket access
 4. Test template loading manually
-

Last Updated: October 27, 2025

System Status:  Operational

Version: 2.0 (Advanced Mockup Generator)