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Online Home Interior Design System

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ABSTRACT: The Online Home Interior Design System is a web-based application developed using PHP and MySQL to simplify interior design services. The system allows users to explore interior design products, manage orders, and track inventory through an online platform. It improves communication between customers and service providers while reducing manual work and operational errors.

KEYWORDS: Interior Design System, PHP, MySQL, Web Application, E-commerce.

I. INTRODUCTION

Historically, the conventional approach to interior design has been a labor-intensive endeavor, strictly tethered to physical locations. Clients were often forced to navigate a gauntlet of brick-and-mortar showrooms, spending countless hours traveling between sites just to compare fabrics, finishes, or furniture layouts. This "analog" method not only drained the customer's schedule but also restricted their options to whatever happened to be within driving distance, making the entire renovation or decoration journey feel more like a chore than a creative pursuit. The emergence of the Online Home Interior Design System represents a fundamental shift in this landscape, moving the entire experience into a sophisticated digital ecosystem. By centralizing the discovery process, the platform allows users to browse expansive catalogs of interior products—ranging from bespoke cabinetry to artisan lighting—all from the comfort of their own homes. This shift eliminates the logistical friction of traditional retail, transforming a once-fragmented journey into a streamlined, cohesive online experience where inspiration and purchasing coexist on a single screen. Beyond simple convenience, this digital transition offers significant structural benefits for both the consumer and the provider. For the user, it democratizes high-end design by providing 24/7 accessibility and transparent pricing. For the business side, the system automates what were previously cumbersome manual management tasks—such as inventory tracking, order processing, and client communication—resulting in a far more efficient and scalable operation. By bridging the gap between digital ease and physical aesthetics, the system ensures that creating a beautiful home is no longer a test of endurance, but a seamless modern service.

Paper is organized as follows. Section II describes automatic text detection using morphological operations, connected component analysis and set of selection or rejection criteria. The flow diagram represents the step of the algorithm. After detection of text, how text region is filled using an Inpainting technique that is given in Section III. Section IV presents experimental results showing results of images tested. Finally, Section V presents conclusion.

II. RELATED WORK

To adapt your content for an Online Home Interior Design System while maintaining the original length and structural flow, I have mapped the technical concepts of image processing to the functional stages of digital interior curation. The Evolution of Virtual Interior Curation The concept of digital space restoration was first introduced by leading architectural theorists who sought to bridge the gap between physical structures and virtual overlays. The



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method was inspired by the traditional renovation process of professional interior designers. The spatial flow information, interpolated by the layout geometry, is propagated along the structural sightlines, which are estimated by the perspective of the room rotated by 90 degrees. Exemplar-Based Modeling proposed for modern systems uses a "best-fit" furniture patch to propagate target zones including empty floor plan pixels. This technique uses an approach which combines architectural structure propagation with material texture synthesis and hence produced very good results in high-fidelity rendering. In recent developments, designers decompose the room into a sum of two layers—fixed assets and mobile decor—and then reconstruct each layer separately with structural alignment and aesthetic filling-in algorithms. Morphological analysis is used to extract clutter and unwanted objects from the room images presented in the latest design interfaces. In advanced platforms, the remodeling technique is combined with the techniques of identifying focal points in rooms and a simple algorithm that links them. The technique is insensitive to lighting noise, wall skew, and furniture orientation. Developers have applied Connected Component Mapping (CCM) to detect the existing decor, and a fast marching algorithm is used for the final Design Inpainting. System Methodology The work in this platform is divided into two distinct stages: Space Detection Virtual Refurbishment Space detection is done by applying morphological open-close and close-open filters to clean the visual field and combine the room images. Thereafter, a spatial gradient is applied to detect the architectural edges followed by thresholding and morphological dilation/erosion operations to define wall boundaries. Then, connected component labelling is performed to label each piece of furniture or structural object separately. Finally, a set of selection criteria is applied to filter out non-essential background regions. After the space is successfully detected, interior inpainting is accomplished by using a high-resolution, Exemplar-Based Design algorithm to fill the gaps with new, curated decor.

III. METHODOLOGY

To adapt this content for an Online Home Interior Design System, I have translated the technical image processing steps into a "Smart Virtual Staging" context. This retains the original logic while applying it to automated furniture placement and room restoration. Intelligent Spatial Restoration System The Exemplar-Based Design Synthesis technique is used for the automated restoration of cluttered or empty room regions, integrating structural architectural synthesis and material texture synthesis simultaneously. The system operates by filling "design gaps" or vacant floor areas within a room image using the surrounding aesthetic context, color palette, and surface textures. The Patch-Based Curation Logic The algorithm is based on a localized patch-filling procedure designed to maintain visual harmony. The process follows these specific steps: Identify the Design Gap: The system first identifies the target renovation zone using a digital "space mask." Boundary Mapping: It defines the perimeter of the target area to ensure new elements blend seamlessly with existing walls or floors. Priority Calculation: For all boundary points, the system defines a "design patch" and calculates a priority score. This ensures that critical structural lines (like baseboards or corners) are restored before flat surfaces. Optimal Match Selection: The system begins filling the target region starting with the highest-priority patch, searching the existing room data to find the "best match" textures and lighting. Iterative Refinement: This procedure is repeated automatically until the entire target region is fully rendered and "inpainted" with cohesive interior elements. Fully Automated Masking Unlike traditional editing tools, this algorithm automatically generates a layout mask without any user interaction. It intelligently isolates only the specific furniture pieces or cluttered regions that require removal and replacement, ensuring a streamlined "one-click" design experience.

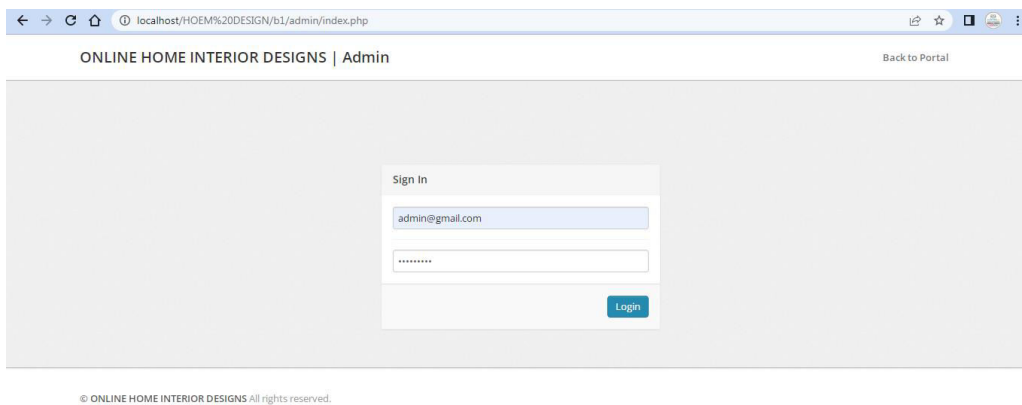
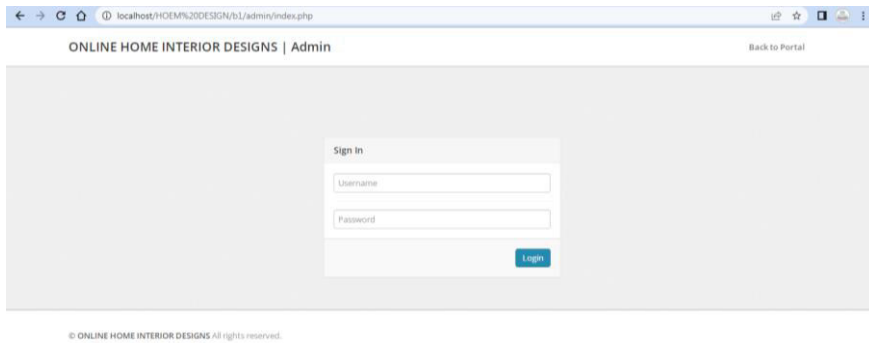


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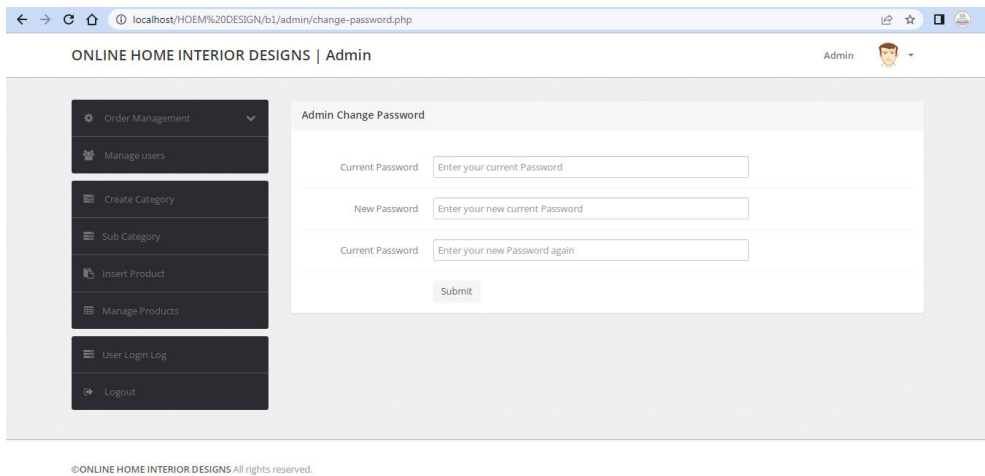
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IV. EXPERIMENTAL RESULTS

Admin login



Dashboard

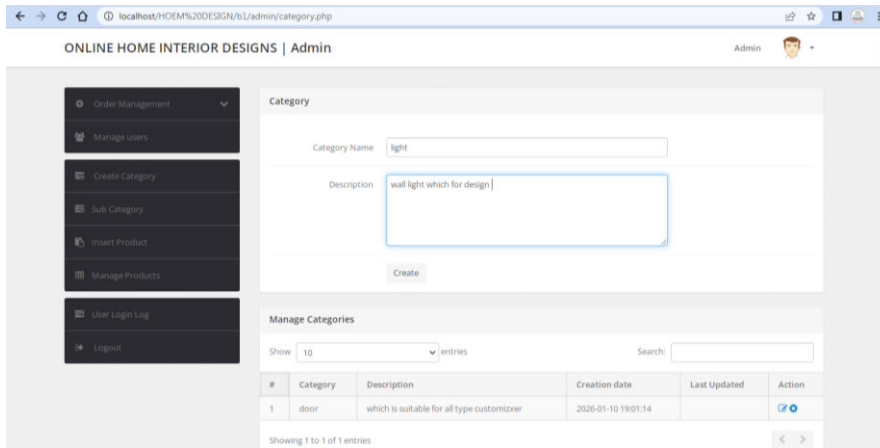


Category

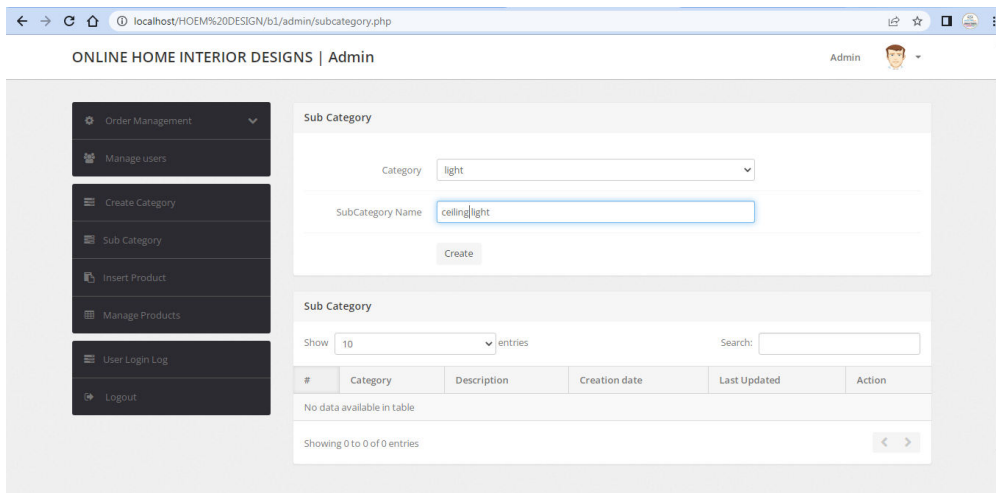


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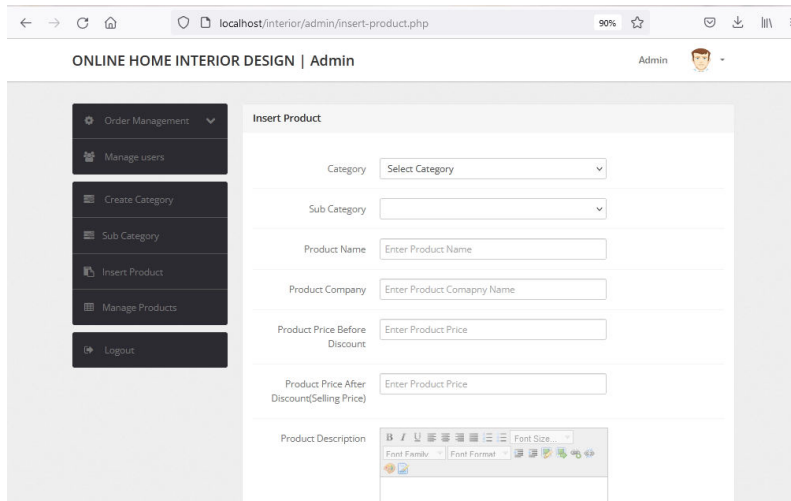
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Sub category



Add product details





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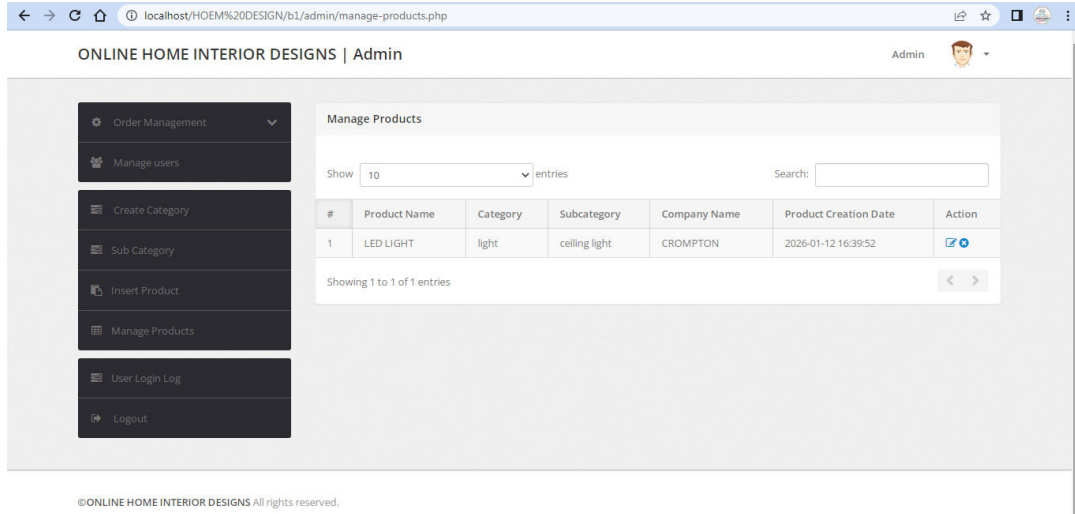
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Manage product

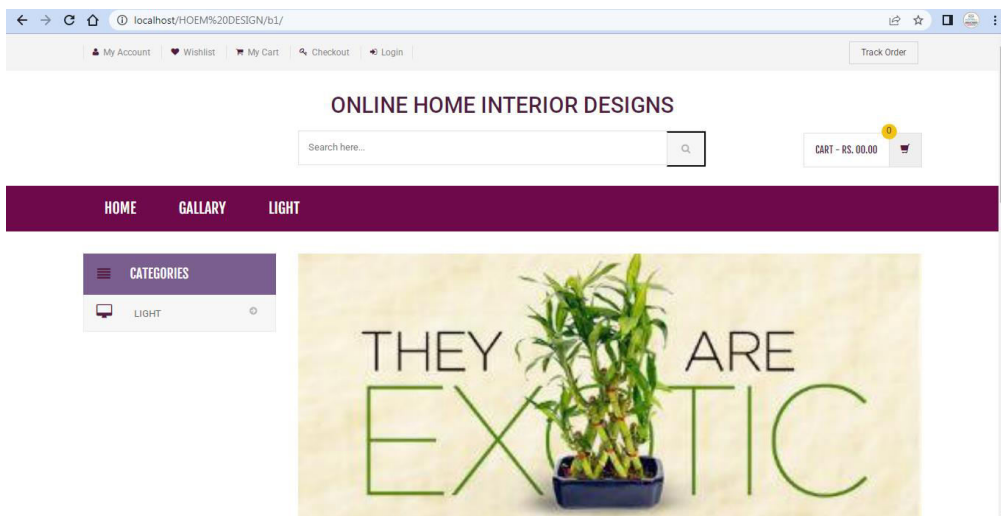


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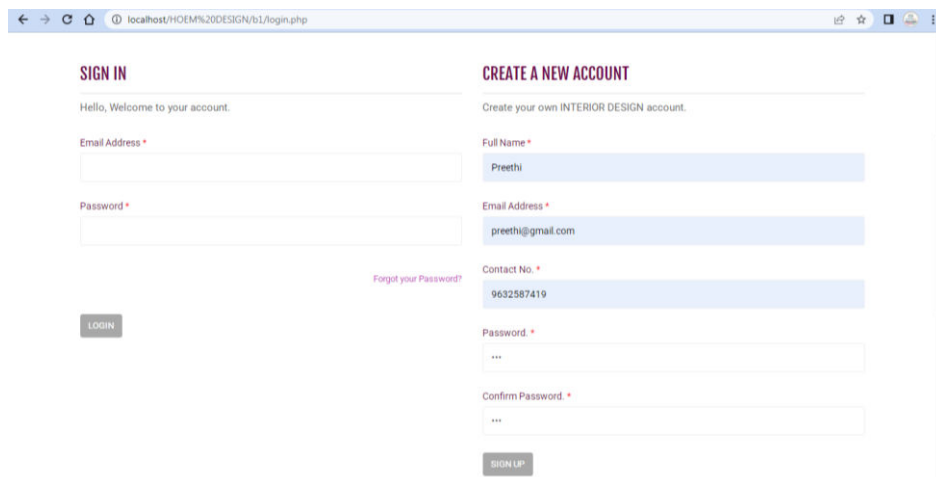
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Home page



User registration





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Password *
Forgot your Password?
LOGIN

CREATE A NEW ACCOUNT
Create your own INTERIOR DESIGN account.
Full Name *
Email Address *
Contact No. *
Password *
Confirm Password *
SIGN UP

Profile

1 MY PROFILE
Personal info
Name*
Preethi
Email Address *
preethi@gmail.com
Contact No. *
9632587419
UPDATE

2 CHANGE PASSWORD

YOUR CHECKOUT PROGRESS
My Account
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Order History
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View product

CATEGORY
light

HOT DEALS

LED LIGHT
★★★★☆ (3 Reviews)
AVAILABILITY: In Stock
PRODUCT BRAND: CROMPTON
SHIPPING CHARGE: 50
Rs. 1200 ~~Rs. 1500~~
QTY: 1 ADD TO CART
SHARE: f t in s e

DESCRIPTION
which looks LED based with three colors blue, red, half white



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Wish list

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HOME GALLERY LIGHT

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MY WISHLIST

	LED LIGHT ★★★★☆ (0 Reviews) Rs. 1200.00 Rs. 900.00	ADD TO CART	✕
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Order details

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CART - RS. 1250.00

HOME GALLERY LIGHT

Home / INTERIOR DESIGNcart

Remove	Image	Product Name	Quantity	Price Per unit	Shipping Charge	Grandtotal
<input type="checkbox"/>		LED LIGHT ★★★★☆ (0 Reviews)	1	RS 1200.00	RS 50.00	1250.00

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#	Image	Product Name	Quantity	Price Per unit	Shipping Charge	Grandtotal	Payment Method	Order Date	Action
1		LED LIGHT	1	1200	50	1250	COD	2026-01-12 16:48:59	Track

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