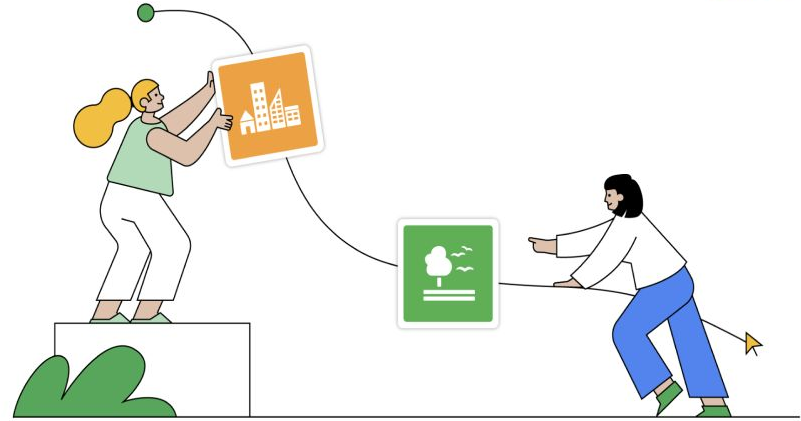


Solution Challenge



Team Details



- a. **Team name:** ARchitects
- b. **Team leader name:** Avanish Kasar
- c. **Problem Statement:** Homeowners and designers often struggle to visualize and plan interior spaces before actual implementation. Traditional tools are static, expensive, and time-consuming, leading to poor design decisions, budget overruns, and lack of spatial awareness. There's a need for an accessible, interactive, and intelligent platform that empowers users to design, visualize, and optimize their spaces with confidence — before lifting a single brick.

Brief about your solution:

ARchitect is an all-in-one intelligent design platform that merges 3D visualization, AI-based budgeting, and augmented reality to offer an immersive experience for designing spaces. From planning a room layout to testing furniture placement in real-time through your camera,

ARchitect helps users explore, create, and finalize their vision confidently. The AI assistant 'Gemini' guides users with suggestions on design, layout, and budgeting. It simplifies space planning while offering advanced, interactive tools accessible to everyone.

Opportunities

a.How different is it from any of the other existing ideas?

- Absence of free, interactive, user-friendly platforms for personal space planning.
- Growing demand for DIY design tools powered by AI.
- Lack of real-time AR-based interior design tools.

b.How will it be able to solve the problem?

Offers a 3D room planner, AI-based budget planner, AR furniture preview, and AI assistant Gemini for intelligent design suggestions.

c.USB of the proposed solution

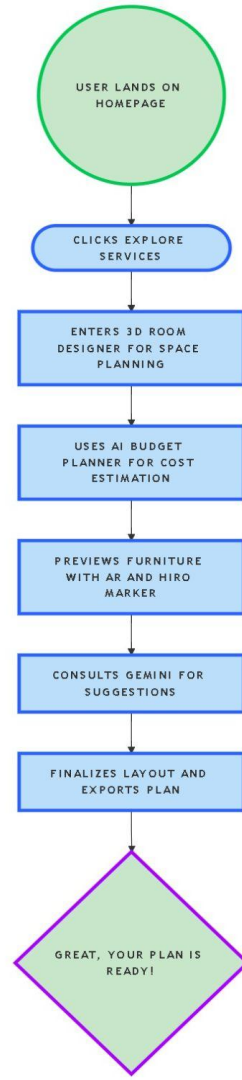
- Combines AI, AR, and 3D in one web platform.
- Real-time AR preview using a simple HIRO marker.
- AI assistant that helps with budgeting, layout, and furniture suggestions.
- 100% free-to-use with no paid tools or subscriptions.

List of features offered by the solution

1. **3D Room Designer:**
 - Drag-and-drop interface with isometric layouts
 - Realistic furniture textures and materials
 - Wall decor, lighting, and flooring preview
2. **AI Budget Planner:**
 - Enter project essentials, get instant cost estimates
 - Smart optimization tips to reduce costs
3. **AR Furniture Preview:**
 - Print and scan a HIRO marker with your camera
 - Demo shows a red box rendered on the marker
 - Future updates will include real furniture items (tables, chairs, etc.)
4. **Gemini - AI Design Assistant:**
 - Offers design advice and layout feedback
 - Helps pick budget-friendly furniture
 - Available 24/7 within the platform


Process flow diagram or Use-case diagram

1. User opens the ARchitect platform
2. Begins designing using the 3D room planner
3. Inputs budget requirements into the AI Budget Planner (Design must be uploaded by the user)
4. Tests furniture placement using AR and HIRO marker
5. Gets expert guidance from Gemini AI assistant
6. Finalizes layout and shares/export the plan



Wireframes/Mock diagrams of the proposed solution

ARchitect

HomeServicesRoom DesignerBudget PlannerPortfolioContact

ARchitect

HomeServices

Transform Spaces Into Experiences

Bringing architectural visualization to life with cutting-edge AR technology and interactive design tools.

Explore Our Services

Interactive Room Planning


Design your ideal space with our powerful 3D tools and augmented reality visualizations

3D Room Planner

Use our powerful 3D room planner to design and customize your space with professional tools



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Our Services

Experience cutting-edge visualization technology and planning tools to transform your design ideas into beautiful interactive spaces.



3D Room Designer

Our interactive 3D room planner helps you visualize your space before making any changes. Experiment



AI Budget Planner

Our AI-powered budget planning tool helps you estimate costs for your architectural projects.








AR Furniture Preview

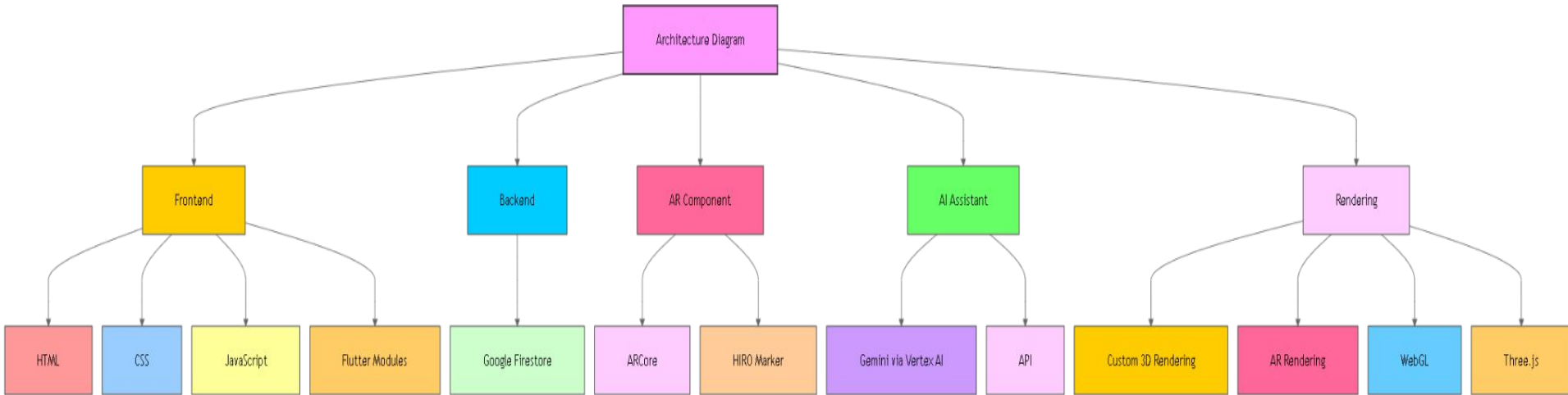
Augmented reality solutions that let you see furniture and design elements in your real space

AI Budget Planner & Assistant

Estimate your project costs and get intelligent advice with our AI-powered tools

Construction	Interior Design	Furniture	Smart Home Tech
<div></div> <div>Square Feet</div> <div><input type="text" value="1000"/></div> <div>Cost per sq ft (€)</div> <div><input type="text" value="10000"/></div> <div>€ 12,000,000</div>	<div></div> <div>Number of Rooms</div> <div><input type="text" value="5"/></div> <div>Cost per room (€)</div> <div><input type="text" value="60000"/></div> <div>€ 3,250,000</div>	<div></div> <div>Furniture Pieces</div> <div><input type="text" value="20"/></div> <div>Avg cost per piece (€)</div> <div><input type="text" value="85000"/></div> <div>€ 1,700,000</div>	<div></div> <div>Number of Devices</div> <div><input type="text" value="15"/></div> <div>Avg cost per device (€)</div> <div><input type="text" value="25000"/></div> <div>€ 375,000</div>
Estimated Total			
€17,325,000			
<div>Gemini AI Design Assistant</div>			

Architecture diagram of the proposed solution



Technologies to be used in the solution

- **Google ARCore** – for augmented reality
- **HIRO Marker** – marker-based AR rendering
- **Google ML Kit** – for object detection (future update)
- **Vertex AI / Gemini** – for smart assistant
- **Firestore** – cloud-based backend
- **Flutter** – partial UI component integration
- **HTML/CSS/JS** – main web stack

Snapshots of the MVP

ARchitect

Home

Services

Room Designer

Budget Planner

AI Budget Planner & Assistant

Estimate your project costs and get intelligent advice with our AI-powered tools

Construction

Square Feet

1000

Cost per sq ft (₹)

12000

₹ 12,000,000

Interior Design

Number of Rooms

5

Cost per room (₹)

650000

₹ 3,250,000

Furniture

Furniture Pieces

20

Avg cost per piece (₹)

85000

₹ 1,700,000

Smart Home Tech

Number of Devices

15

Avg cost per device (₹)

25000

₹ 375,000

Estimated Total

₹17,325,000

Gemini AI Design Assistant

3D Room Planner

Use our powerful 3D room planner to design and customize your space with professional tools



ARchitect

Home

Services

Room Designer

Budget Planner

Portfolio

Contact

Gemini AI Design Assistant

Cost-saving tips for your project

best ways to cost save ?

Based on your budget of ₹17,325,000, I'd recommend allocating 60% to construction, 20% to interior design, 15% to furniture, and 5% to smart technology. This balanced approach ensures quality construction while leaving room for elegant interiors.

Ask me about your project...



Additional Details/Future Development

- Real Furniture Rendering in AR: Tables, chairs, sofas, etc.
- AR Object-on-Hand Visualization: Place decor items directly on your palm using AR.
- Sustainable Design Mode: Suggest eco-friendly materials and vendors.
- Move to Google IDX: Transitioning our full development workflow to Google Project IDX for seamless cloud-based collaboration and deployment.
- Gemini API Integration: Real-time integration of Gemini via Vertex AI to power the assistant with actual smart API responses.
- Voice Assistant Capabilities: Ask design or budget questions using your voice and get instant AI help.
- User Account & Project Saving: Save and return to your design layouts anytime.
- Community Gallery: Share designs and get inspiration from others.

Provide links to your:

1. GitHub Public Repository

https://github.com/avanishkasar/WEB_3.0

2. Demo Video Link (3 Minutes)

https://github.com/avanishkasar/WEB_3.0/blob/Presentation-Media/Full%20Video.mp4

3. MVP Link

https://github.com/avanishkasar/WEB_3.0/blob/main/WEB_3.0.html



Solution Challenge



Thank you

