propvr

PRODUCT WHITEPAPER

PROPVR SPATIAL OS

Spatial Avatar

AI-Powered Holographic Presenter for Real Estate Experience Centers

Hardware + Software + Content + Integration — one partner, one solution. An autonomous, multilingual concierge that greets, presents, and converts, 24/7.

CUBE & VISTA HOLOBOX | BUILT ON UNREAL ENGINE | 22" TO 86" | MULTIPLE LANGUAGES

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00 INSIDE THIS PAPER

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01 OVERVIEW

Executive Summary

The real estate industry is undergoing a fundamental shift in how properties are presented and sold. Buyers across India, the Middle East, and global markets expect immersive, interactive experiences that go far beyond static renderings and printed brochures.

Meanwhile, experience centers face mounting pressure from staffing constraints, language barriers, inconsistent messaging, and the inability to serve visitors outside business hours.

Spatial Avatar is a product within the PropVR Spatial OS platform that places an AI-powered virtual presenter inside a holographic display cabinet (holobox), creating an autonomous, multilingual concierge that greets visitors, answers project-related questions in natural conversation, and delivers immersive property presentations — without requiring a single human staff member on the floor.

Available in two hardware form factors — the **Cube** (vertical, life-size avatar) and the **Vista** (horizontal, upper-body avatar) — Spatial Avatar transforms any lobby, sales gallery, exhibition booth, or experience center into a 24/7 intelligent touchpoint. Built on Unreal Engine for photorealistic avatar rendering and powered by a proprietary real-time AI engine, it represents the convergence of holographic display technology, conversational AI, and real estate domain expertise.

One platform. Every language. Always on.

Spatial Avatar replaces the staffing-intensive, hours-limited, single-language experience center model with a tireless, multilingual, always-accurate digital presenter that works across your entire portfolio.

Multiple	24/7	2	<30min
LANGUAGES SPOKEN NATIVELY	ALWAYS-ON VISITOR ENGAGEMENT	FORM FACTORS — CUBE & VISTA	PLUG-AND-PLAY SETUP TIME

02 THE PROBLEM

The traditional gallery model has reached its limits

Real estate developers invest heavily in sales galleries and experience centers to convert prospects into buyers. Yet the operational model used in most galleries today carries significant limitations.

STAFFING LIMITATIONS

Experience centers rely on trained sales consultants who work fixed schedules, take holidays, and require ongoing training with every project update. During peak traffic — exhibition days, public holidays, evening walk-ins — queues form, visitors leave, and qualified leads are lost.

LANGUAGE BARRIERS

A single project in Mumbai or Hyderabad may attract buyers who speak Hindi, Marathi, Telugu, Tamil, Kannada, or English. In Dubai and Riyadh, the mix expands to Arabic, Hindi, Urdu, Malayalam, and Tagalog. Hiring multilingual staff for every combination is prohibitively expensive — buyers not comfortable in the available language receive a diminished experience, or leave entirely.

INCONSISTENT MESSAGING

Human presenters vary in knowledge depth, enthusiasm, and accuracy. New team members may misquote pricing, omit amenities, or fail to communicate the developer's brand narrative with the intended emotional impact. Every inconsistency carries reputational and legal risk.

AFTER-HOURS VACANCY

Most sales galleries operate during business hours, yet international buyers frequently visit outside these windows — arriving after flights, during weekends, or on public holidays. An unmanned gallery during these moments represents lost revenue.

EXHIBITION SCALABILITY

Developers participate in property exhibitions across multiple cities simultaneously — Cityscape Dubai, IPS Abu Dhabi, CREDAI events across India, Arabian Property Show. Sending trained staff to each booth is expensive, while untrained temporary staff dilute brand impact. The industry needs a scalable, replicable presenter that delivers the same quality everywhere.

THE RESULT

Sales galleries struggle to hold buyer attention, communicate project value effectively, and create the emotional connection that drives purchasing decisions. Developers need a presentation medium that is **always available, fluent in every buyer's language, and consistent in every interaction.**

Buyers who are not comfortable in the available language receive a diminished experience — or leave entirely.

THE COST OF THE LANGUAGE GAP

03 THE SOLUTION

Spatial Avatar

Holographic display technology meets real-time conversational AI — addressing every limitation of the traditional staffing model.

03 THE SOLUTION

What it is

Spatial Avatar is a software application that runs on the PropVR Spatial OS platform and is deployed inside a holobox — a transparent LCD display cabinet that creates a life-like holographic effect. The application renders a photorealistic AI-powered avatar in real time, allowing visitors to interact with it through natural speech.

The avatar appears to float inside the box as a volumetric, three-dimensional figure. Unlike a screen, which displays a flat image, the holobox creates genuine visual depth — the presenter looks like a person standing inside a glass cabinet. It speaks, gestures, maintains eye contact, and responds to questions in real time, creating a presence that feels tangible and human.

Unlike a screen-based chatbot or a simple video loop, Spatial Avatar commands spatial attention. The holographic form factor creates a "wow" moment that draws visitors in, holds their gaze, and delivers information in a format that is memorable, shareable, and deeply branded.

CUBE HOLOBOX — LIFE-SIZE AVATAR

THREE CAPABILITIES AT ITS CORE

01

Conversational AI

Understands and responds to visitor questions in real time, handling contextual follow-ups and disambiguation.

02

Multilingual Speech

Delivers responses in the visitor's preferred language with native fluency across multiple languages.

03

Autonomous Presentation

Guides viewers through a structured property walkthrough with synchronized visuals, floor plans, and renders.

04 HARDWARE

Two form factors

Spatial Avatar is available in two holographic enclosure designs, each engineered for distinct deployment contexts. Both are available in sizes ranging from 22" to 86".

CUBE — VERTICAL

A portrait-orientation, vertical holographic display cabinet. Its tall, upright aspect ratio makes it the ideal format for displaying a full human-size avatar — the presenter appears to stand at natural proportions inside the enclosure, creating maximum visual impact and a genuine sense of presence.

ORIENTATION	Portrait — tall upright cabinet
AVATAR SCALE	Full body / life-size presenter
SIZES	22" to 86"
BEST FOR	Lobbies, gallery entrances, exhibition centrepieces

VISTA — HORIZONTAL

A landscape-orientation, horizontal holographic display cabinet. Its wide aspect ratio is optimized for presenting an upper-body avatar alongside supplementary visual content — project renders, floor plans, and amenity highlights can appear next to the presenter within the same enclosure.

ORIENTATION	Landscape — wide horizontal cabinet
AVATAR SCALE	Upper body / bust presenter
SIZES	22" to 86"
BEST FOR	Reception desks, concierge counters, broker offices, kiosks

CUBE — LIFE-SIZE GREETER, AVATAR IN REGIONAL ATTIRE

VISTA — DESK-LEVEL CONCIERGE, UPPER-BODY AVATAR

CUBE VS. VISTA — AT A GLANCE

FEATURE	CUBE (VERTICAL)	VISTA (HORIZONTAL)
ORIENTATION	Portrait — tall upright cabinet	Landscape — wide horizontal cabinet
AVATAR SCALE	Full body / life-size	Upper body / bust
SIZES AVAILABLE	22" to 86"	22" to 86"
BEST FOR	Life-size greeter, exhibition centrepiece	Desk-level assistant, countertop kiosk
WHY THIS SHAPE	Vertical matches human proportions	Horizontal fits avatar + content panels
OPTIMAL AUDIENCE	1–20+ visitors (scales with size)	1–5 visitors (intimate interaction)
AUDIO	Integrated directional speakers	Integrated directional speakers
INTERACTION	Voice + gesture + optional touch panel	Voice + optional touch panel

CHOOSING BETWEEN THEM

The Cube's vertical aspect matches human body proportions, enabling a full-height avatar that feels like a real person standing in the room — ideal where a life-size digital greeter creates maximum impact. The Vista's horizontal aspect provides space for the avatar plus adjacent content panels, ideal for desk-level and countertop interactions.

05 INTERACTION

How visitors interact

Spatial Avatar is designed around a frictionless interaction model that requires no app downloads, no QR codes, and no prior instructions. A visitor simply walks up and begins speaking.

1 **APPROACH**
The visitor walks toward the holobox. Proximity sensors detect their presence and the avatar activates, turning to face them with a greeting in the default language.

2 **GREETING**
The avatar welcomes the visitor with a warm, branded welcome and offers a language selection prompt — for example Hindi, Arabic, and English in a Dubai gallery, or Hindi, Telugu, and Tamil in a Hyderabad experience center.

3 **CONVERSATION**
The visitor asks questions naturally — "Payment plan kya hai?", "Show me three-bedroom units." The AI responds in real time with accurate, up-to-date project data in the visitor's language.

4 **PRESENTATION MODE**
At any point the system can trigger a structured presentation. The avatar narrates while synchronized visuals — renders, floor plans, maps, amenity highlights — appear on an adjacent display or within the holobox itself.

5 **HANDOFF**
When the visitor is ready to proceed, Spatial Avatar captures their intent and triggers the appropriate CRM workflow — logging a lead, sending a WhatsApp message, or alerting the on-site team.

SUPPORTED INTERACTION MODALITIES

- **Voice** — Natural speech recognition and response in Hindi, Arabic, English, and 20+ additional languages. The primary mode of interaction.
- **Touch** — Optional companion tablet or integrated touch panel for browsing floor plans and selecting units.
- **Gesture** — Hand-wave triggers or directional gestures for navigating presentation slides on life-size installations.
- **QR Follow-Up** — The avatar can display a QR code that lets visitors continue the conversation on their mobile device after leaving.

INTERACTION CONFIGURATIONS

DIRECT VOICE

The visitor speaks directly to the holobox. Built-in microphone arrays capture speech and the avatar responds through integrated directional speakers. This is the primary and recommended mode.

PAIRED KIOSK

A separate touchscreen kiosk is connected to the holobox. Visitors browse floor plans, select units, and trigger presentations on the kiosk while the avatar narrates from within the holobox — preferred for premium installations where touching the display surface should be avoided.

No app downloads, no QR codes, no instructions. A visitor simply walks up and begins speaking.

FRICTIONLESS BY DESIGN

06 CAPABILITIES

Features & capabilities

AI ENGINE

Conversational AI

Trained on real estate domain knowledge and fine-tuned with project-specific data. Handles disambiguation and gracefully redirects out-of-scope queries to human agents.

LANGUAGES

Multilingual Support

Indian: Hindi, Tamil, Telugu, Kannada, Malayalam, Marathi, Bengali, Gujarati, Punjabi. Middle Eastern: Arabic, Urdu. Global: English, French, Russian, Mandarin, Spanish, Tagalog. Auto-detected.

DATA

Real-Time Knowledge Base

Pricing, availability, floor plans, amenities and timelines ingest from the developer's CMS or CRM. Inventory updates reflect within minutes via the Spatial OS data pipeline.

CONTENT

Autonomous Presentation

A structured, narrated walkthrough the avatar delivers end to end — customizable per project, audience and language, with synchronized renders, animations and lifestyle imagery.

INSIGHTS

Visitor Analytics

Every interaction generates structured data: questions asked, languages, dwell time, topics of interest and lead-intent signals — feeding the Spatial OS analytics dashboard.

INTEGRATION

CRM Integration

Connects to Salesforce, HubSpot and Yardi to log interactions as lead records, tag visitor interests, and trigger follow-up workflows. Webhook-based for custom platforms.

AVATAR

Avatar Customization

Built in Unreal Engine and customized to match brand identity — clothing, grooming, voice, persona and cultural appearance. Choose pre-built avatars or commission bespoke characters in traditional attire.

TOOLS

Sales & Marketing Tools

Floor-plan viewer with dimensions, configurable payment plans, brochures & fact sheets on demand, location maps with landmark distances, and QR generation to save details to phone.

CMS

Content Management

Remote CMS to update pricing and content without site visits. Multi-project switching, scheduled content for demos and events, and instant updates synced across all Spatial products.

BUILT ON THE SHARED SPATIAL OS PIPELINE

Real-time knowledge uses the same PropVR Spatial OS data pipeline that powers Spatial Holo, Spatial Touch, and every other product in the ecosystem — so content created once stays consistent everywhere.

07 PHILOSOPHY

Holographic design philosophy

Spatial Avatar is engineered specifically for holographic displays, not adapted from a screen-based application. Every design decision prioritizes maintaining the three-dimensional illusion that makes the holobox a premium experience.

WHY HOLOGRAPHIC?

Flat screens are ubiquitous and, as a result, invisible. A holographic display breaks that pattern — it occupies three-dimensional space, creates depth, and triggers curiosity. Research on spatial displays shows 3D-projected figures hold attention 3–5× longer than 2D equivalents.

PEPPER'S GHOST, PERFECTED

The enclosures use a refined Pepper's Ghost optical principle — a semi-transparent surface reflects a high-brightness display to create a floating, volumetric figure. PropVR advances this with anti-reflective coatings, high-nit panels and precision optics that stay vivid in ambient light.

VOLUMETRIC AVATAR — VIVID IN AMBIENT LIGHTING

Engineered for holographic displays — never adapted from a flat screen. Every decision protects the three-dimensional illusion.

THE DESIGN PRINCIPLE

RENDERING FOR TRANSPARENCY

Tuned lighting, material shaders and background contrast ensure the avatar appears solid through the transparent LCD across varying ambient light.

AVATAR REALISM

Unreal Engine MetaHuman delivers accurate skin shading, strand-based hair, eye moisture and procedural micro-movements — alive, not robotic.

ENCLOSURE AESTHETICS

Brushed aluminium frames, tempered glass and minimal bezels complement luxury galleries, five-star lobbies and branded stands.

08 ARCHITECTURE

Technical architecture

A layered system designed for low-latency interaction, high visual fidelity, and secure data handling.

SOFTWARE STACK

COMPONENT	DETAILS
Rendering engine	Unreal Engine (latest stable release)
Platform	PropVR Spatial OS — shared data pipeline across all Spatial products
Application	Spatial Avatar — proprietary AI module optimized for holographic display
AI engine	Proprietary LLM + Retrieval-Augmented Generation (RAG) pipeline
Speech	Neural TTS + ASR pipeline supporting multiple languages
Data layer	Real-time sync with CMS for pricing, availability and content updates
Touch input	Infrared touch overlay (built-in) or external kiosk via network bridge
Analytics	Session tracking, interaction heatmaps, language distribution, lead scoring

HARDWARE SPECIFICATIONS

SPECIFICATION	DETAILS
Display	4K transparent LCD (3840 × 2160) with LED backlighting
Form factors	Cube (vertical) and Vista (horizontal)
Size range	22", 32", 43", 55", 65", 75", 86"
Transparency	Up to 70% light transmission
Camera	4K with face tracking capability
Microphone	Multi-element array with noise cancellation
Connectivity	Wi-Fi, Ethernet, HDMI, USB, 4G/5G SIM slot
Compute	Embedded processing unit with dedicated GPU (Windows)
Power / Setup	Standard AC, typically under 500W · plug-and-play in under 30 minutes

ARCHITECTURE LAYERS

LAYER	COMPONENT	FUNCTION
Perception	Microphone array + depth sensor + camera	Captures speech, detects presence/proximity, enables face tracking
Intelligence	Proprietary AI engine (LLM + RAG)	Processes queries, retrieves project data, generates contextual responses
Speech	Neural TTS + ASR pipeline	Converts speech to text and text to natural speech in multiple languages
Rendering	Unreal Engine 5 (local GPU)	Renders avatar animations, lip-sync and gestures in real time
Display	High-nit panel + optical assembly	Projects the holographic avatar visible to the naked eye
Integration	REST API + webhook layer	Connects to CRM, CMS, analytics dashboard and Spatial OS
Management	Spatial OS console	Remote configuration, content updates, analytics and monitoring

ON-DEVICE PROCESSING

Each unit contains a high-performance computing module with a dedicated GPU. Avatar rendering, lip-sync and gesture blending run locally for zero-latency feedback. Speech uses a hybrid edge-cloud model: initial recognition on-device for speed, with cloud models for contextual understanding and response generation.

SECURITY

All data between the holobox and cloud is encrypted via TLS 1.3. Voice data is processed in real time and not stored unless explicitly configured for analytics. The system complies with GDPR, India's DPDP Act and regional regulations, with data residency options for India, UAE, EU and Asia-Pacific.

09 DATA

Data pipeline

Spatial Avatar connects to the PropVR Spatial OS data pipeline — the single source of truth for all project data across the product ecosystem. Update a unit's status once, and it reflects across the holobox avatar, touchscreen kiosk, VR station and immersive room simultaneously.

INGESTION

Project data is ingested from existing systems via secure API connectors — CRM platforms (Salesforce, HubSpot, Yardi), content management systems, Google Sheets, and direct CSV/JSON uploads through the Spatial OS console.

STRUCTURING

A structuring layer normalizes unit types, pricing formats, availability statuses and amenity classifications into a unified schema, so the AI responds consistently regardless of source formatting.

RETRIEVAL-AUGMENTED GENERATION

On each question, the AI performs a real-time retrieval against the structured database — today's pricing, this morning's availability — weaving it into a natural-language response. This ensures factual accuracy and eliminates hallucination on project-specific queries.

CONTENT VERSIONING

Every update is versioned. If a price changes, the previous value is archived — supporting audit trails, historical analytics and instant rollback.

ANALYTICS OUTPUT

Interaction data flows to the analytics layer in real time. The dashboard surfaces top questions, language distribution, peak times, session duration, popular units and lead-intent scoring — a continuous feedback loop for sales and marketing.

10 DEPLOYMENT

Deployment scenarios

One platform, deployed across the entire real estate customer journey — from sales gallery to exhibition booth to post-handover concierge.

EIGHT WAYS TO DEPLOY SPATIAL AVATAR

GALLERY

Sales Gallery

The primary context. An 86" Cube greets visitors with a life-size avatar, presents the project and captures leads; a 55" Vista on reception adds a second touchpoint. Operates during and beyond business hours.

HOSPITALITY

Hotel & Airport Lounges

Units in business-class lounges or luxury hotel lobbies provide a passive yet powerful touchpoint, engaging international buyers with a brief, captivating introduction.

RETAIL

Mall Activation

A temporary pop-up in a high-footfall mall. The Cube's life-size avatar stops foot traffic while staff use the paired kiosk to walk visitors through the project.

REMOTE

Remote Sales Offices

International offices present projects located thousands of kilometres away, giving buyers an immersive preview without travel to the development site.

EVENTS

Exhibition Booth

A 55" or 65" Cube transported to Cityscape, IPS, CREDAI Natcon or Arabian Property Show. Setup under an hour. Draws foot traffic and presents in every visitor's language — no flying staff to every event.

BROKER

Broker Office

A Vista on a broker's desk acts as a knowledgeable co-pilot — delivering project details in real time while the broker focuses on relationship-building and negotiation.

CONCIERGE

Residential Lobbies

Post-handover, Spatial Avatar becomes a community concierge — helping residents with building info, amenity bookings, visitor management and announcements.

ENTERPRISE

Multi-Project Center

Multiple holoboxes in one experience center — Cube units for hero presentations, Vista units for desk-level consultation — all on one Spatial OS backend and CMS.

11 BUSINESS CASE

Return on investment

Spatial Avatar delivers quantifiable ROI across three dimensions: cost reduction, revenue acceleration, and brand amplification.

COST REDUCTION

COST CENTRE	TRADITIONAL MODEL	WITH SPATIAL AVATAR
SALES STAFF (PER SHIFT)	2–4 consultants on floor	0–1 consultants (AI handles volume)
MULTILINGUAL HIRING	3–5 language specialists	Built-in: multiple languages, zero headcount
EXHIBITION STAFFING	Fly team to each city	Ship unit; zero travel cost
TRAINING (PER UPDATE)	Full team re-briefing	Data sync in minutes via CMS
AFTER-HOURS COVERAGE	Security guard only	Fully operational 24/7 presenter

30–40%
MORE LOGGED LEADS VS. STAFFED-ONLY GALLERIES

15–20%
INTERACTIONS OCCUR OUTSIDE BUSINESS HOURS

2–4×
LONGER VISITOR DWELL TIME VS. FLAT SCREENS

REVENUE ACCELERATION

- **Lead capture rate** — engages 100% of visitors; no one ignored during busy periods.
- **Qualified conversations** — structured questions (budget, preference, timeline) mean leads arrive pre-qualified.
- **After-hours conversions** — captures the 15–20% of meaningful interactions previously unserved.
- **Multi-language reach** — buyers who'd have left due to language barriers now get a full, fluent presentation.

REVENUE IMPACT

- **Dwell time** — holographic displays extend the engagement window 2–4×.
- **Sales cycle** — interactive unit selection shortens enquiry-to-shortlist.
- **Multi-language** — a single install serves multiple languages without extra staffing.
- **Data intelligence** — analytics inform pricing and inventory decisions.
- **Social amplification** — the spectacle generates organic content reaching beyond the venue.

Brand Amplification

The holographic format generates organic social media content. Visitors record and share their interaction with the avatar, producing authentic, high-reach content that amplifies the developer's brand without paid advertising spend — with measurable spikes in social mentions and booth traffic attributable to the "hologram effect."

12 ECOSYSTEM

Part of the PropVR Spatial OS ecosystem

Spatial Avatar is one of nine products within the PropVR Spatial OS platform. All share the same Unreal Engine core, project data pipeline, and CMS — content created once is deployed everywhere.

PRODUCT	DESCRIPTION
Spatial Holo	Interactive 3D holographic model viewer (Cube & Vista holobox)
Spatial Avatar	AI-powered avatar assistant inside the holobox for conversational Q&A
Spatial Touch	Touchscreen kiosk app for masterplan exploration and unit browsing
Spatial Cave	Multi-wall immersive room for cinematic walkthroughs
Spatial Tour	VR headset station for first-person interior walkthroughs
Spatial Lens	AR on-site visualization via phone or tablet
Spatial Table	Interactive tangible tabletop for collaborative sales presentations
Spatial Drive	Immersive buggy ride simulation through the community
Spatial Map	Projection mapping system for physical scale models

THE SPATIAL OS ADVANTAGE

A developer deploying Spatial Avatar today can add Spatial Holo, Spatial Touch, or any other product later without rebuilding content. A project's 3D assets, data and branding are created once and deployed everywhere — from the holographic presenter in the lobby to the VR headset in the remote sales office — ensuring visual and informational consistency across every customer touchpoint.

13 ONBOARDING

Implementation process

PHASE	DURATION	KEY OUTPUT
Discovery & Scoping	Week 1	Scope document, hardware recommendation
Data Onboarding	Weeks 1–2	Populated knowledge base, CRM integration
Avatar Design	Weeks 2–3	Branded avatar with voice and persona
Content Build	Weeks 3–4	Multilingual presentations and AI testing
Hardware Deployment	Weeks 4–5	Calibrated, on-site holobox deployment
Go-Live & Support	Week 5+	Live system with ongoing monitoring

PHASE 1

Discovery & Scoping

A discovery session establishes project specifics, audience, languages, locations and integration needs — output is a scope document and hardware recommendation.

PHASE 2

Data Onboarding

Inventories, pricing, floor plans, brand guidelines and FAQ libraries are ingested; CRM/CMS connectors configured. Existing Spatial OS assets are reused.

PHASE 3

Avatar Design

The avatar is designed or selected and customized — clothing, grooming, voice, persona and gesture choreography, with multilingual voice profiles.

PHASE 4

Content Build

Structured presentations link narration to synchronized media; multilingual scripts are reviewed and AI responses tested against a comprehensive question set.

PHASE 5

Hardware Deployment

Holobox hardware is delivered, installed and calibrated — network, power, audio and lighting optimized. A field engineer runs a full system test.

PHASE 6

Go-Live & Support

The system goes live with on-site support, followed by remote monitoring, monthly content reviews and priority support.

Typical timeline from onboarding to go-live: **4–8 weeks**, depending on complexity and number of languages. Projects already on PropVR Spatial OS deploy faster by reusing existing 3D assets and data pipelines.

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GET STARTED

Let's deploy your holographic presenter.

Whether you are launching a single project or building a multi-project experience center, PropVR provides end-to-end delivery — from avatar design to hardware deployment and ongoing support.

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PRESENCE

India · UAE · Saudi Arabia