

Per Diem A/V Interaction & Engagement Application (AV-IEA)

Modular, Cloud-Based, Rewards-Driven Media System

I. Purpose & Vision

Design a browser-based A/V system to create immersive, programmable audio and video experiences across diverse business sectors. The system will enrich customer engagement by syncing real-time A/V outputs with business logic such as appointments, transactions, or user profiles. **Tokenization is limited strictly to payments and rewards**, ensuring a focused and compliant application of blockchain technology via **Solana**.

II. Supported Industries

- **Retail:** Product-linked display video, music zones, branded soundscapes
- **Food Service:** Kitchen-to-dining A/V sync, personalized greetings, ambient audio
- **Hospitality:** Room-based media experiences, concierge-triggered playback
- **Health & Beauty:** Calming media for treatment areas, stylist profiles, sound therapy

- **Wellness & Fitness:** Class-start cues, meditation sessions, reward-based playlists
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III. Core Functional Modules

A. Dynamic A/V Playback Engine

- Real-time media playback across audio, video, and streaming
- Playback triggered by:
 - Appointment check-in/out
 - Token-based purchase
 - Time-based schedules
 - Staff or admin prompts
- Sector-specific media sets (e.g., chef intro clips, spa ambient sounds)

B. Zone Management Interface

- Assign media to specific zones: lobbies, rooms, dining areas, booths
- Volume and output control per zone
- Auto-scheduling for open/close hours, staff shifts, or daily events

C. Tokenized Reward Reactions (Solana-based)

- Audio/visual triggers activated by:
 - Completion of tokenized payment via Solana
 - Redemption of loyalty points or stored value
 - Media feedback to signal successful reward: chimes, celebration animations, visual cues
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IV. Tokenization Strategy (Solana-Only)

Token Use Case	Functionality
Payment Confirmation Triggers	Audio/visual playback initiated when Solana-based payments are confirmed
Loyalty Reward Redemption	Reward-tier visuals or soundscapes play when a guest redeems tokens
Token-Based Discounts	Visual indicators reflect discount status or tier level during POS events
No On-Chain Media Metadata	All A/V content is stored and served via traditional cloud storage/CDNs

V. Technical Architecture Overview

Component	Technology Stack
Frontend UI	React.js, Tailwind, embedded in Per Diem dashboard
Media Delivery	HTML5 video/audio player, HLS/DASH support
Backend Services	Node.js, Express.js APIs
Cloud Infrastructure	AWS/GCP/Firebase for media hosting and control logic
Blockchain Payment Layer	Solana Pay, Phantom Wallet, SPL Token API
POS Bridge	API/WebSocket connectors to POS systems (Toast, Square, Lightspeed)

VI. Merchant Control Panel Features

- Playlist and media library manager
- Visual schedule builder by zone, staff shift, or token action
- “Payment Confirmed” or “Reward Redeemed” media assignment
- Real-time zone override for live content (e.g., special events)

VII. Sample Experience Flows

Scenario	Triggered A/V Response
Guest completes token payment for a VIP haircut	Confirmation chime + branded welcome message plays
Table at restaurant redeems token for free dessert	Short celebratory video plays at screen or table display
Retail guest makes Solana token payment	Receipt tone + brand sound logo plays
Hotel guest uses token reward for room upgrade	Welcome video auto-plays on smart display

VIII. Accessibility & Privacy Considerations

- ADA-compliant audio/visual controls
 - Closed captioning and color contrast tools
 - No user biometric, camera, or audio capture
 - Blockchain wallet addresses are handled as pseudonymous tokens only
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IX. Rollout Plan

Phase Milestone

Phase 1	Base A/V scheduler with manual triggers
Phase 2	Solana Pay integration and token redemption triggers
Phase 3	Per Diem dashboard integration for cross-sector use
Phase 4	Custom audio/visual templates by business type
Phase 5	Sector-specific media library licensing + partner expansion

X. Future Feature Considerations (Non-tokenized)

- **Live Stream Override:** Events or DJs stream directly into A/V system
 - **Mood-Based Smart Curation:** Time-of-day or staff-selected emotional presets
 - **Calendar-Linked Playback:** Appointment-based media tied to customer profiles
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XI. Summary

The AV-IEA is a flexible, modular tool for orchestrating ambient and responsive audio/video content in physical spaces.

Tokenization is used solely for payments and rewards, reinforcing a focused and scalable application of Solana's blockchain technology. This solution empowers businesses to turn ordinary environments into rich, rewarding, and memorable brand experiences—**without over-engineering token utility** or compromising user comfort.