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**MOOD: Adaptive Control System for Experiential Environments.**

**MOOD is a centralized control system that integrates artificial intelligence for environmental analysis with standard entertainment industry software, designed to automate and optimize the direction of interactive installations and immersive spaces.**

The system offers an advanced solution to overcome the static nature of traditional staging, enabling the creation of environments that dynamically change based on real, measurable conditions.

**Functional Architecture of the MOOD System**

MOOD operates through three main integrated modules:

1. **Environmental Analysis Engine (AI-Powered):**
   * **Computer Vision:** Through cameras, the engine performs real-time audience analysis, quantifying aggregate parameters such as **crowd density**, **people count**, and **kinetic energy** (motion) **level.** The system is designed to ensure privacy, analyzing data anonymously to perceive the general atmosphere without identifying individuals.
   * **Audio Analysis:** Using ambient microphones, the system analyzes the soundscape to classify it. It distinguishes between silence, background buzz, conversations and music, measuring metrics such as **volume (dB)** and **spectral energy** to enrich AI decision context.
2. **Centralized Control and Native Integration:**
   * MOOD acts as an **orchestra conductor**, interfacing fluently with industry-standard professional software. The current implementation includes native control of:
     + **QLab:** Advanced audio/video cue management, dynamic volume adjustment and playback.
     + **Resolume Arena:** Real-time manipulation of visual effects, layer opacity and clip synchronization.
     + **Light Console (via OSC/ArtNet):** Compatibility with platforms such as **Chamsys MagicQ** and **GrandMA3** for control of scenes, intensity and color parameters.
   * The system architecture is **inherently modular and scalable**. Integration of additional software (e.g., TouchDesigner, Ableton Live) or communication protocols (MIDI, DMX) is native, ensuring longevity and adaptability of the investment.
3. **Art Direction Interface (Mood Designer):**
   * The system has a control interface that allows art directors and technicians to program the behavior of the installation using conditional logic (IF-THEN). Examples of implementable rules:
     + **Scenario 1 (High Energy):** *IF the number of people exceeds 20 AND the aggregate movement level is above 70%, THEN the system activates the "Energetic" mood*.
     + **Scenario 2 (Calm Atmosphere)***: IF the ambient volume is less than 40dB AND movement is almost absent, THEN the system activates the "Contemplative" mood to encourage reflection*.
   * **Automatic Learning:** The AI is not limited to deterministic rule execution, but is equipped with a learning module. It analyzes correlations between activated configurations (lights, sounds, video) and audience engagement metrics over time, autonomously optimizing its decisions to maximize the impact of the experience.

**Strategic and Operational Benefits.**

MOOD is engineered to deliver a tangible and measurable return on investment.

* **24/7 Operational Efficiency:** The system provides adaptive and tireless control of the environment throughout the duration of an exhibit, **operating 24/7** without incurring variable costs or the need for constant supervision. This enhances the role of skilled staff, shifting the focus from repetitive manual execution to the **strategic and creative design** of the initial experience.
* **Autonomy and Reliability:** Once the artistic logic is programmed, MOOD acts with **complete autonomy**, ensuring a dynamic and consistent experience for every visitor, regardless of time of day or attendance. It is a robust solution for museums, galleries and permanent installations.
* **Optimization of Existing Infrastructure:** MOOD integrates with existing hardware equipment and software licenses, enhancing the value of prior technology investments. The system operates on compact, high-performance hardware (such as Raspberry Pi 4 or NVIDIA Jetson) for local processing of sensor data, ensuring responsiveness and security.

**Innovation and Market Positioning.**

MOOD represents a new category of solutions for managing experiential spaces, filling a gap in the current market. Unlike rigid and expensive hardware systems or vertical software limited to a single task, MOOD offers a **holistic and intelligent control platform**.

Investing in MOOD means equipping yourself with a platform for the future, a technology and creative partner that can ensure that every visitor has a unique and memorable experience.

**MOOD: Art that Reacts.**