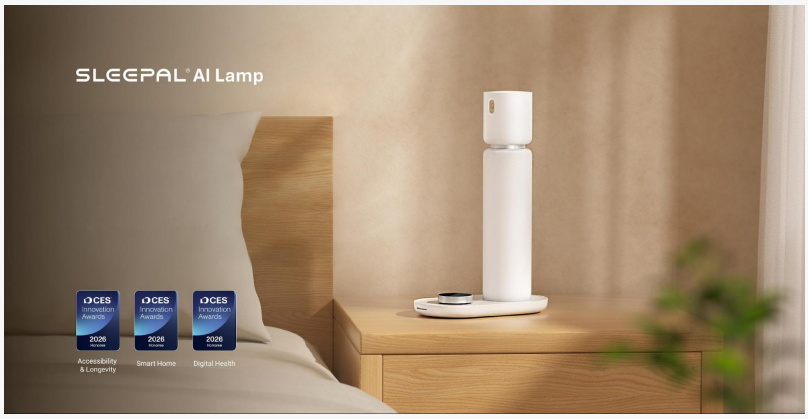
XSmart Opens Early Reservations for Triple CES 2026 Winner Sleepal AI Lamp with PSG-Validated Contactless Sleep Tracking

LAS VEGAS, NV, UNITED STATES, May 6, 2026 /EINPresswire.com/ -- XSmart has opened early reservations for the Sleepal AI Lamp, a contactless sleep monitoring system recognized with three CES 2026 Innovation Awards. The device delivers polysomnography-validated sleep tracking without wearable devices.



The Sleepal AI Lamp, recognized with three CES 2026 Innovation Awards for Accessibility & Longevity, Smart Home, and Digital Health, features a privacy-first design with local AI processing and no cameras.


The Sleepal AI Lamp monitors sleep from a bedside position without requiring wearable devices, using millimeter-wave radar and thermal sensing to capture vital signs, sleep posture, and environmental data.

Sleepal combines 60 GHz millimeter-wave radar for vital sign detection, thermal sensing for position tracking, and environmental monitoring of temperature, humidity, light, and acoustics. The system captures sleep posture, room conditions, and breathing quality—data points typically unavailable through wearable-only solutions.

Clinical Validation
In a 1.022-night hospital sleep lab study against polysomnography (PSG)—the clinical gold standard—Sleepal achieved:
- 92.77% sleep/wake accuracy (Cohen's kappa: 0.791)
- 77.2% four-stage classification accuracy (kappa: 0.677)
- 84.9% REM detection

Even among patients with severe

obstructive sleep apnea, Sleepal maintained 74.3% accuracy — a population where most consumer wearables see significant performance drops.

The validation preprint is now available on arXiv (2604.16442). “The Breakthrough of Sleep: A Contactless Approach for Accurate Sleep Stage Detection Using the Sleepal AI Lamp,” was co-authored with Prof. Dr. Thomas Penzel, President of the World Sleep Society and Scientific Director at Charité – Universitätsmedizin Berlin.

“This study demonstrates the strong potential of a large and innovative AI model for advancing contactless sleep monitoring. It suggests a promising avenue for future research and applications in sleep and home health,” said Penzel.

The AI model was trained on more than 2,000 PSG nights across 2.5 years of continuous development, enabling consistent performance even in challenging real-world conditions, including shared bedrooms, restless sleep patterns, and breathing disruptions.

Sensor Fusion and Privacy Architecture
The device features a patent-protected sensor fusion system backed by 11 patents (US 12241977B1). The 60 GHz millimeter-wave radar detects chest micro-movements as small as 0.1 mm, capturing respiration and heart rate through blankets. A thermal array sensor enables sleep posture classification without optical imaging. Environmental sensors monitor temperature, humidity, light, and acoustic conditions.

The system includes no cameras and processes AI locally (3 TOPS). A physical hardware kill switch provides circuit-level disconnection of thermal and microphone sensors.

Active Sleep Improvement
Built on clinically validated sleep staging, Sleepal provides circadian-rhythm support through stage-responsive automation.

- Rhythm-aware lighting: Automatically dims as sleep onset occurs; gradually brightens during the lightest sleep phase prior to the alarm, simulating a natural sunrise based on detected sleep stage data.
- Auto night light: Soft illumination activates during nighttime movement and fades when the individual returns to bed.
- Gesture snooze: Natural hand gestures or turning motions activate the snooze function without button interaction.
- Perpetual alarm: The alarm continues until the system detects physical departure from the bed.
- Positional guidance: For individuals with positional sleep apnea, back-sleeping often exacerbates snoring. Sleepal tracks posture, identifies reduced snoring in side-sleeping positions, and provides guidance.
- Wind-down audio: Guided breathing, white noise, and playlists synchronized with dimmed

lighting.
- Smart home integration: Matter support is planned via a post-launch software update, enabling connectivity with blinds, thermostats, and other devices.

Core sleep-tracking features are included at no additional cost. Advanced analytics, including sleep staging, snoring detection, long-term trends, and personalized coaching, are available through an optional premium subscription.

Company and Leadership
Sleepal AI Lamp is developed by XSmart, led by founder and CEO Dian Fan, who previously headed IoT platform operations at a Fortune 500 smart-home company. Fan's team has grown to nearly 100 people spanning radar engineering, RF design, algorithm development, and AI systems. Prior to Sleepal, the team shipped over 1 million millimeter-wave radars, bringing production-grade reliability and manufacturing scale expertise to consumer sleep tracking.

"Sleep is becoming increasingly important. Yet most solutions have relied on wearables, adding extra burden to those who already struggle," Fan said. "We are committed to a natural, scientific approach: understanding sleep, identifying root causes, and providing personalized guidance."

Ningning Li, a decorated industrial designer (iF Gold, Red Dot: Best of the Best, IDEA, Good Design), designed the lamp using clean geometric forms to minimize visual clutter and reduce the learning curve for users. The product has been featured by YankoDesign.

About XSmart
XSmart is the technology company behind Sleepal, with deep expertise in millimeter-wave radar sensing, AI algorithms, and intelligent product development. Before launching Sleepal, XSmart shipped more than 1 million smart sensor products and built a multidisciplinary team spanning radar, RF, algorithm, and AI engineering. Working with medical institutions and sleep researchers, XSmart develops reliable contactless sleep technologies designed for everyday home use.

For more information, visit sleepal.ai

Media Contact
Review units are available for qualified media and creators upon request. To request a unit for evaluation or to schedule an interview with Dian Fan, please contact support@sleepal.ai.

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