

# Chapter 11

## An Inexpensive Internet of Thing Sleep Monitoring System

**Sabyasachi Pramanik**


 <https://orcid.org/0000-0002-9431-8751>

*Haldia Institute of Technology, India*

**Soma Bag**


*Asadtala Nivedita Kanya Vidyamath, India*

**Ahmed J. Obaid**

 <https://orcid.org/0000-0003-0376-5546>


*Kufa University, Iraq*

**Atanu Roy**

 <https://orcid.org/0000-0001-5269-9122>

*School of Maritime Studies, The Neotia University, India*

**Pranati Rakshit**

 <https://orcid.org/0000-0001-5037-1326>

*JIS College of Engineering, India*

### ABSTRACT

*By detecting issues, refining sleep patterns, and assessing the success of remedies, sleep monitoring provides substantial advantages for comprehending and enhancing an individual's sleep experience. This begs the questions of what makes for peaceful sleep and what influences the typical individual when they sleep. The system provided in this study employs sensors that measure and detect temperature, humidity, light level, air quality, and room noise in order to cover a broad range of parameters that*

DOI: 10.4018/979-8-3373-4094-4.ch011

*impact the quality of sleep and to capture both the important data and the distracting aspects that may emerge during sleep. Additionally, the subject's movements and pulse will be observed. The sleeping person is video and audio recorded in order to confirm any potential connections between the measured data and sleep quality. This allows the data collected by the sensors at a certain instant in time to be used to assess the sleeping person's condition. The accumulation of data must be stored for an extended period of time in order to assess how sleep quality has changed.*

## **OVERVIEW**

Sleep is a vital component of life and has a big influence on our health and happiness. It is essential for mental clarity, physical well-being, emotional control, and bodily healing and regeneration. Our body heals damaged cells and tissues from physical and emotional stress throughout the day at the cellular level as we sleep. These systems function poorly when we become disturbed or don't get enough sleep, which has an adverse effect on our performance and general health. Additionally, sleep facilitates the consolidation of day's worth of events and knowledge in our brain, improving memory, focus, and cognitive functions. The brain can work at its best while getting enough sleep, setting it up for the best possible mental performance throughout the day. On the other hand, insufficient or low-quality sleep may impair judgment, mental clarity, and general performance on learning and cognitive activities. Studies have shown that sleep deprivation may have a major effect on the various neuro-cognitive phases of processing spatial information while performing a virtual driving activity. While older persons have a drop in working memory and a slowing in decision-making processes, young adults experience a significant reduction in attentiveness and orienting functions. The test participants' actions have a lag in both scenarios. Poor sleep quality might eventually result in mental and physical health problems, such as depression and anxiety disorders. People may even be more susceptible to psychosis under severe circumstances (Pan et al., 2023; U.S. Dept., 2011). Numerous advantages of getting enough sleep include boosting the immune system, mental wellness, and energy levels. On the other hand, exhaustion and disturbed sleep may result in worse cognitive function, a higher chance of accidents, and physical health issues including obesity and high blood pressure. In order to profit from peaceful sleep and prevent the negative effects of exhaustion, it is crucial to pay enough attention to sleep and adopt healthy behaviors after the evaluation of sleep quality (Zhang et al, 2023; Izullah et al, 2022). Affordably priced Internet of Things (IoT) sleep monitoring devices may be introduced to assist people in keeping an eye on the quality of their sleep and identifying any problems that can impact their general health and performance.

14 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: [www.igi-global.com/chapter/an-inexpensive-internet-of-thing-sleep-monitoring-system/397290](http://www.igi-global.com/chapter/an-inexpensive-internet-of-thing-sleep-monitoring-system/397290)

## Related Content

---

### From Intake to Insight: Clinical Judgment and Structured Assessment in Autism Diagnosis

Sanam Hafeez (2026). *Clinical Perspectives on Recent Trends in Autism Assessment, Diagnosis, and Treatment* (pp. 21-42).

[www.irma-international.org/chapter/from-intake-to-insight/401144](http://www.irma-international.org/chapter/from-intake-to-insight/401144)

### Case Studies of Successful Herbal-Based Wound Formulation: Wound Healing

Ekata Prajapati (2026). *Applications of Herbal Excipients and Polymers in Wound Healing* (pp. 309-344).

[www.irma-international.org/chapter/case-studies-of-successful-herbal-based-wound-formulation/392525](http://www.irma-international.org/chapter/case-studies-of-successful-herbal-based-wound-formulation/392525)

### Anticancer Properties of Some Antioxidants

Velid Unsal (2022). *Handbook of Research on Natural Products and Their Bioactive Compounds as Cancer Therapeutics* (pp. 399-423).

[www.irma-international.org/chapter/anticancer-properties-of-some-antioxidants/299813](http://www.irma-international.org/chapter/anticancer-properties-of-some-antioxidants/299813)

### Impact of Tuberculosis in Elderly Population

Gagan Chooramani and Pooja Singh (2018). *Handbook of Research on Geriatric Health, Treatment, and Care* (pp. 326-338).

[www.irma-international.org/chapter/impact-of-tuberculosis-in-elderly-population/201389](http://www.irma-international.org/chapter/impact-of-tuberculosis-in-elderly-population/201389)

### Mental Health: A Global Issue Affecting the Pattern of Life in Kashmir

Shazia Ali, Amat Us Samie, Asma Ali, Aashiq Hussain Bhat, Tariq Mirand Barre V. Prasad (2020). *Biopsychosocial Perspectives and Practices for Addressing Communicable and Non-Communicable Diseases* (pp. 18-29).

[www.irma-international.org/chapter/mental-health/252414](http://www.irma-international.org/chapter/mental-health/252414)