Patent Search

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Abstract:

The present disclosure relates to systems and methods, and provides a smart IoT-based AI-assisted baby monitoring mat (100) configured to continuously monitor ar physiological condition in real time, transmitting encrypted sensor data via a wifi (114) to a cloud database system (116) and delivering high-priority alerts and AI-base recommendations to caregivers. The smart IoT-based AI-assisted baby monitoring mat (100) includes a multi-layer infant mat structure (102) housing all sensor eleme a soft protective surface layer (104), an infrared temperature sensing module (106) for non-contact body temperature measurement, a sound detection module (110) detection, and an AI-based chatbot assistant (120) for condition-specific care guidance. The smart IoT-based AI-assisted baby monitoring mat (100) is configured to m condition continuously during operation, thereby providing a safe, comfortable, and intelligent system that informs parents with actionable suggestions instantly.

Complete Specification

Description:TECHNICAL FIELD
[001] The present invention relates to the field of healthcare and smart parenting technology, and more particularly to a Smart IoT-Based AI-Assisted Baby Monitori comprising embedded non-contact infrared temperature sensing, cry detection signal processing, cloud-based data storage, and an AI-based chatbot assistant for r parental guidance.
BACKGROUND
[002] The field of healthcare and smart parenting technology has seen significant development in recent years, with increasing interest in continuous physiological monitoring of infants. Infants are physiologically vulnerable and may experience rapid changes in body temperature or exhibit distress signals such as sustained cry Caregivers typically rely on physical observation, manual touch assessment, and intermittent use of handheld thermometers to assess the condition of an infant. Th conventional approaches depend entirely on the physical presence and attentiveness of the caregiver and may not provide timely or accurate information in all circumstances.
[003] Conventional infant monitoring devices may provide audio or video feeds to a caregiver, enabling remote observation of the infant. However, such devices typ not perform continuous physiological parameter measurement, do not analyse sound patterns to distinguish infant crying from ambient environmental noise, and generate condition-specific alerts based on measured data. Temperature monitoring, where available in prior approaches, may require physical contact with the inf skin, which may cause discomfort and may not be suitable for continuous unattended use, particularly during nighttime periods when caregiver attentiveness may reduced

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