

Human-Centered Design In Infant Care Technology: A Heuristic Review Of Woddle Baby

AN EVALUATION BY HITLAB



This report presents HITLAB's independent evaluation of Woddle platform, an infant monitoring solution to improve pediatric decision-making and empower families to track infant health and support timely, informed care.

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Executive Summary

This report presents HITLAB's independent evaluation of the Woddle platform, an infant monitoring solution which delivers milestone reminders, tailored guidance, and expert-reviewed educational resources in real time. The Woddle Smart Changing Pad is an innovative 6-in-1 nursery device that integrates precision weighing technology with everyday caregiving functions to support infant health monitoring in the home. Designed as an FDA Class I registered medical device, it includes a high-accuracy scale (± 5 grams) that enables parents to detect subtle weight changes between pediatric visits, an essential indicator of growth, nutrition, and overall well-being.

HITLAB conducted a heuristic evaluation of Woddle platform, applying Jakob Nielsen's Ten Usability Heuristics as the guiding framework. The assessment unveiled that usability, caregiver experience, and effectiveness of the system supports infant monitoring and communication between caregivers and healthcare providers. The major findings show that Woddle offers a well-designed, intuitive interface that combines medical-grade accuracy with user convenience.

Woddle's integrated smart scale, feeding and diaper logs, and educational feature provide structured, reliable data to support proactive caregiving and informed decision-making. Overall, HITLAB's evaluation underscores Woddle's strong potential to enhance home-based infant health monitoring by improving usability, caregiver confidence, support, and clinical communication-setting a new standard for connected, data-driven early childhood care at home.



Why Infant Care Still Struggles

Missed Signals, Fragmented Data, and Caregiver Fatigue

In the United States, approximately 3.6 million infants are born each year, and growth monitoring, specifically weight tracking, is among the most critical indicators of early health and development (CDC, 2023).

These early weight changes may signal feeding difficulties, dehydration, or emerging medical issues that require prompt attention. Caregivers often lack access to reliable, clinically accurate tools for tracking these subtle but significant changes between pediatric visits. This gap leads to a delay in early intervention, contributing to parental anxiety and increasing the risk of preventable complications (American Academy of Pediatrics [AAP], 2022).

Delayed recognition of growth or feeding issues



An abnormal weight trajectory in babies can provide critical early warnings regarding infant nutrition or health status. It is evident from research, that inadequate or inconsistent weight tracking may lead to delay in identification of growth faltering and feeding difficulties (Grummer-Strawn et al., 2010; WHO, 2021). The timely responses to early recognition and interventions are essential as it can improve long-term outcomes related to nutrition, cognitive development, and growth.

Fragmented and inefficient tracking



It is well known that many caregivers rely on manual notes or non-medical baby-tracking apps, which leads to incomplete data and limited clinical usefulness (Jones et al., 2022). The limited availability of structured, shareable, and accurate records hinders the ability of pediatricians to assess the current trends or make informed recommendations. This fragmentation reflects inefficiencies seen across digital health systems, where data gaps impede coordinated care.

Why Infant Care Still Struggles

Missed Signals, Fragmented Data, and Caregiver Fatigue



Caregiver stress and burnout

New parents, especially new mothers, often face sleep deprivation and decision fatigue. Studies show that up to 60% of new mothers face stress and anxiety related to uncertainty about feeding adequacy and infant weight gain (Field, 2018; Shorey & Chan, 2020). In the absence of simple integrated tools, the burden of manually recording the main events related to care can increase further stress, reducing the quality of caregiving and overall well-being.



Variation in adherence to care recommendations

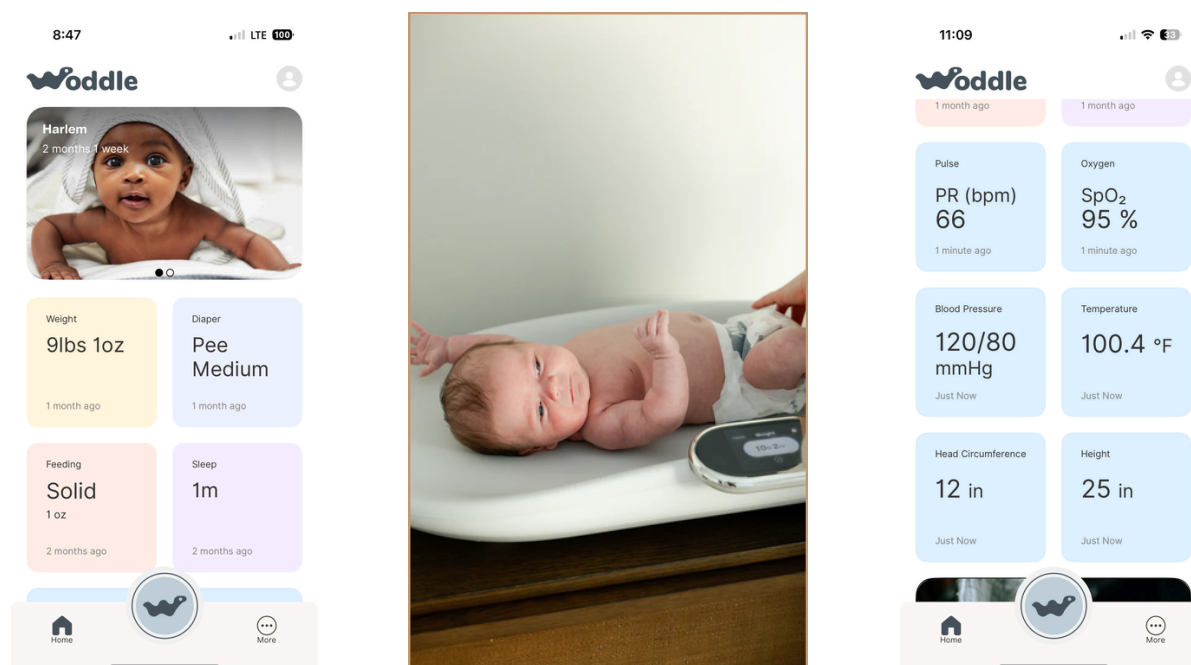
Though pediatric guidelines exist, adherence to care recommendations varies widely based on parental understanding, available resources, and follow-up support. The inconsistent record keeping for baby's important milestones and feeding practices, as well as the lack of standardized feedback loops between caregivers and providers, contribute to variable outcomes (AAP, 2022). A standardized, connected tool can promote adherence to evidence-based recommendations and improve communication between families and clinicians.

Together, the challenges reported above can produce tangible harms: a delayed recognition of growth concerns, increased caregiver anxiety, missed opportunities for timely intervention, and fragmented communication between families and healthcare providers. These challenges represent both a quality and equity concern in pediatric health, underscoring the need for accessible, accurate, and integrated home-based monitoring tools. To address these, solutions like Woddle provide safer, consistent, and value-driven care for infants and families, while enhancing communication and continuity between the home and clinical settings.

Woddle Platform

Redefining decision support for high-acuity childhood care

Woddle is an AI-enabled infant health monitoring platform that integrates medical-grade weight measurement with intelligent, caregiver-friendly support tools. Woddle combines a smart changing pad at its core, equipped with a built-in scale accurate to ± 5 grams, with a connected mobile application that seamlessly captures, tracks, and analyzes infant data. The platform's value proposition lies in empowering and extending support to caregivers and healthcare providers with real-time, reliable insights regarding infant's growth, feeding, and daily routines.



Key features

- **Precise scale:** The device is designed to detect precise weight changes, enabling weighted breastfeeding and accurate post-discharge monitoring for early intervention.
- **Real-time tracking:** Woddle combines a smart changing pad with a mobile application that records weight, feeds, and diaper changes, making daily health monitoring for children effortless and accurate.
- **AI-powered personalized guidance:** The in-application Parenting Coach offers evidence-based, age-specific insights and useful reminders that help caregivers with more confident, informed decisions.
- **Data-driven care insights:** The Woddle platform provides insights on growth and routine trends through data visualization, enabling early detection of issues and support in easy sharing of information with pediatricians for proactive, coordinated care for the infant.

Woddle Platform

Redefining decision support for high-acuity childhood care

- **Comprehensive health documentation:** The platform captures key baby care data records, including weight, feeding, sleep, and diaper patterns. It minimizes manual entry errors and thus saves time for caregivers while ensuring complete and reliable health records.
- **Family and caregiver alignment:** The platform allows multiple caregivers to access and update the same child profile, ensuring everyone stays informed and consistent in daily routines and developmental tracking.
- **Operational and emotional benefits:** The convenience of a consolidated data hub reduces stress and cognitive load on the caregiver. The personalized insights enhance confidence in decision-making and promote a healthier developmental environment.
- **Usability strengths:** Woddle's seamless hardware application integration, intuitive dashboard design, and real-time feedback make it valuable for both parent and provider. It therefore aligns with the goals of efficiency, engagement, and data accuracy in early childhood care delivery.

Why Woddle matters

- **For parents:** Woddle reduces the stress of baby care by helping in tracking feeding, sleep, diaper changes, and growth, and offering AI-driven insights and personalized guidance to support confident, informed parenting.
- **For providers:** Woddle provides accurate, real-time monitoring data, enables early detection of growth or feeding issues and supports data-informed decisions.
- **For healthcare systems:** Woddle connects home monitoring along with clinical care, therefore promoting preventive, value-based care by not only reducing unnecessary visits but also improving early intervention, and enhancing overall child health outcomes.



Heuristic Evaluation

Conducted by HITLAB

HITLAB conducted a heuristic evaluation of the Woddle platform, applying structured usability inspection methods to assess its design, layout, functionality, navigation, and content, identifying areas where the platform diverges from established usability standards or creates barriers that could hinder the user experience.

Methodology

The evaluation was designed to simulate the perspective of end users, particularly parents and clinicians, while providing expert analysis of the platform's design and functionality.

The assessment was guided by Jakob Nielsen's Ten Usability Heuristics, a globally recognized framework for evaluating interface design. Each heuristic principle: visibility of system status, match between system and the real world, user control and freedom; consistency and standards, error prevention, recognition rather than recall, flexibility and efficiency of use, aesthetic and minimalist design, help users recognize, diagnose, and recover from errors, and help and documentation—was systematically applied to identify strengths and areas for refinement.

The evaluation involved a review of the Woddle platform, focusing on both the mobile application and device interface. The assessment explored usability, functionality, and overall user experience to identify strengths and improvement opportunities in supporting daily caregiving and pediatric monitoring through the platform.



Heuristic Evaluation

Conducted by HITLAB

Evaluation Persona

Multiple expert evaluators from HITLAB conducted the review by simulating the role of a 43-year-old Community Clinic Pediatrician, who manages a busy practice serving infants at varying risk levels.

Persona 1: The Provider



Dr. Carlos Menop

Occupation: Pediatrician, Community Clinic

Age: 43



"Accurate data between visits helps me catch potential issues earlier and guide families more effectively."



<p>Background</p> <p>Carlos manages a busy practice serving infants at varying risk levels. While clinic visits provide structured growth data, he often lacks insight between appointments. He values efficient digital tools that deliver accurate, actionable information without adding administrative burden.</p>	<p>Goals</p> <ul style="list-style-type: none"> • Monitor infant weight remotely to detect early warning signs proactively. • Identify feeding or growth risks quickly to guide timely interventions. • Strengthen caregiver-provider communication through clear and shared data. 	<p>Challenges</p> <ul style="list-style-type: none"> • Limited visibility into infant growth patterns between scheduled clinic visits. • High patient volume reduces time available for each family's needs. • Reliance on caregiver reports, which are often inconsistent or incomplete.
<p>Motivations</p> <ul style="list-style-type: none"> • Improve long-term health outcomes through proactive monitoring interventions. • Prevent unnecessary hospital readmissions with earlier detection of concerns. 	<p>Frustrations</p> <ul style="list-style-type: none"> • Excessive data in current systems increases cognitive and administrative load. • Manual charting and note-taking consume valuable clinic time daily. • Missed opportunities for early intervention when data gaps occur. 	<p>Needs</p> <ul style="list-style-type: none"> • Accurate, real-time weight data captured directly from caregiver homes. • Streamlined provider dashboard that integrates seamlessly with existing workflows. • Alerts or flags for abnormal growth patterns requiring attention.

Heuristic Evaluation

Conducted by HITLAB

Evaluation Persona

Multiple expert evaluators from HITLAB conducted the review by simulating the role of a 34-year-old new mother on maternity who is navigating new parenthood while balancing household responsibilities.

Persona 2: The Overwhelmed Mother



Emily Richard

Occupation: Marketing Coordinator (On Maternity)

Age: 34



"I just want to know my baby is growing the way she should without waiting weeks between checkups."



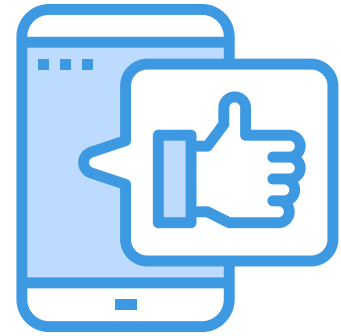
Background <p>Emily is navigating new parenthood while balancing household responsibilities. She seeks reassurance that her baby is thriving between pediatric visits. With limited sleep and high stress, she values tools that simplify routines and provide reliable health insights.</p>	Goals <ul style="list-style-type: none">Track baby's growth reliably between pediatric checkups using medical-grade data.Build confidence in caregiving decisions supported by timely health insights.Share progress seamlessly with partner and pediatrician for collaborative care.	Challenges <ul style="list-style-type: none">Overwhelmed by constant parenting information and conflicting advice sources.Managing sleep deprivation while handling unpredictable nighttime care routines.Unsure whether feeding patterns and baby's growth are on track.
Motivations <ul style="list-style-type: none">Ensure consistent, healthy development and growth milestones for her infant.Establish smoother caregiving routines that reduce stress and uncertainty.	Frustrations <ul style="list-style-type: none">Inconsistent weight tracking methods make health monitoring unreliable.Manual logging of feeds and changes feels time-consumingLimited professional guidance available between scheduled pediatric appointments.	Needs <ul style="list-style-type: none">Access to medical-grade accuracy for infant weight monitoring at home.Intuitive app interface with reminders to support consistent routines.Integrated device features to reduce stress during nighttime caregiving.

Heuristic Evaluation

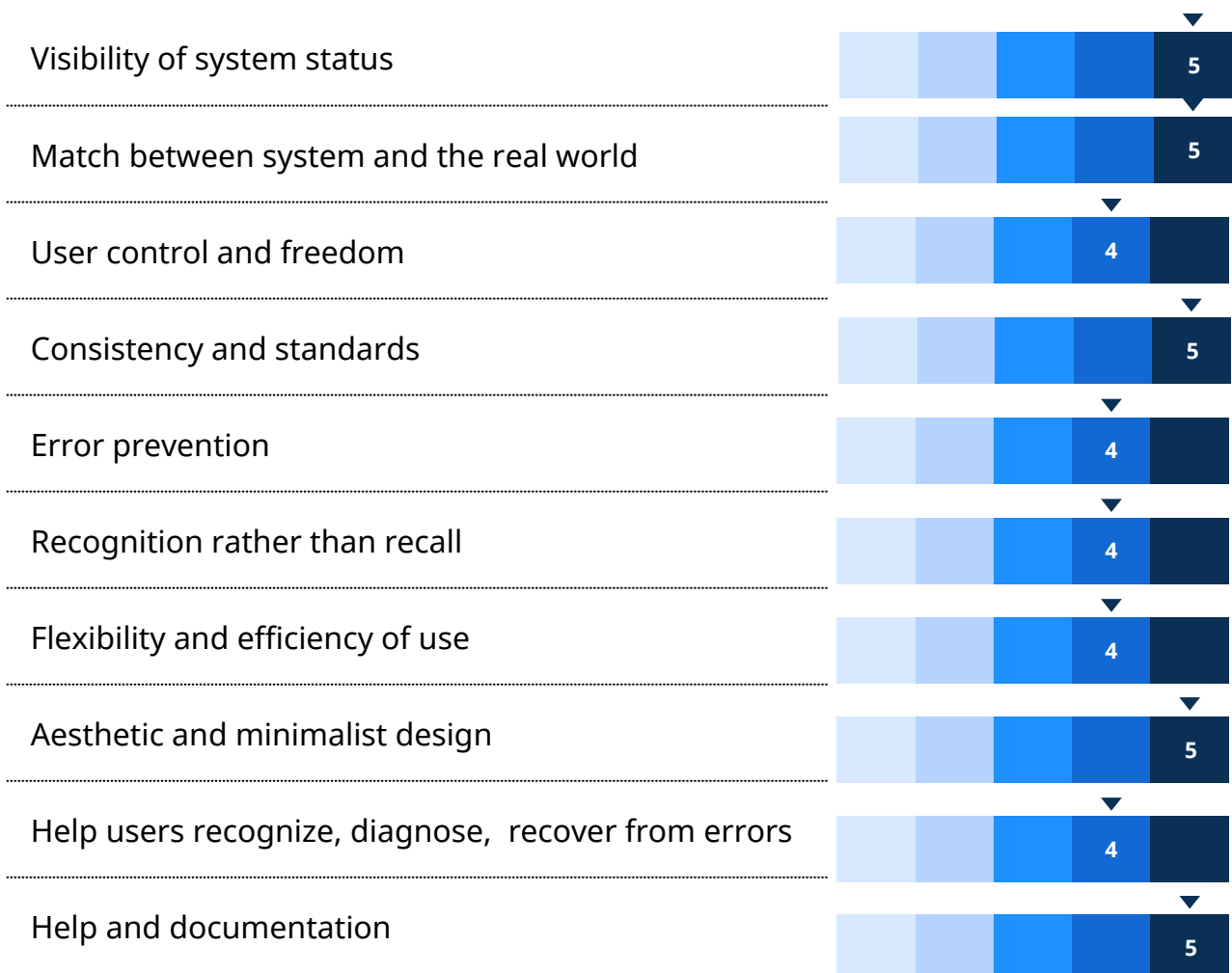
Conducted by HITLAB

Findings

Woddle scored consistently across HITLAB’s heuristic dimensions, with most ratings in the 4–5 range out of 5, underscoring a strong, clinician-oriented design. Importantly, no critical-severity issues were identified, and all areas requiring refinement are implementation-level adjustments rather than structural concerns. This positions Woddle platform as a well-built, adoption-ready platform with only minor refinements recommended before scale-up.



Heuristic Ratings



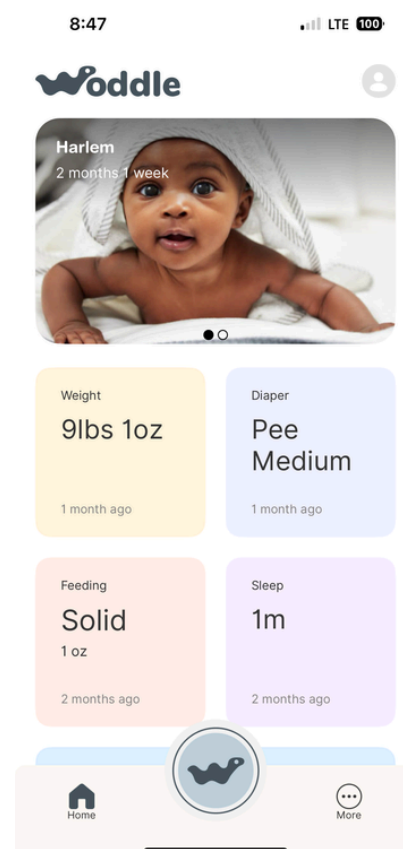
Heuristic Evaluation

Conducted by HITLAB

A1. Woddle Baby App

Strengths Identified

- **Accurate and reliable data tracking:** The smart changing pad's built-in precision scale ($\pm 5g$ accuracy) ensures medical-grade measurements, empowering caregivers with dependable growth data.
- **Clean Layout:** The interface is clear and well-structured, making navigation effortless and allowing users to quickly locate key features without confusion.
- **Modern Design:** The color scheme is thoughtfully chosen - modern, visually appealing, and supportive of readability across different devices.
- **Milestones Section:** Comprehensive and informative, providing parents with valuable developmental insights.
- **AI Feature (Dara):** Interactive and engaging, offering parents an informative and supportive experience.
- **Secure data management and sharing:** Information is stored safely and can be easily shared with pediatricians or co-caregivers, promoting collaborative and informed care.
- **Educational and empowering experience:** Through a combination of features of tracking, insights, and expert-reviewed guidance, Woddle encourages proactive parenting and informed health decisions.



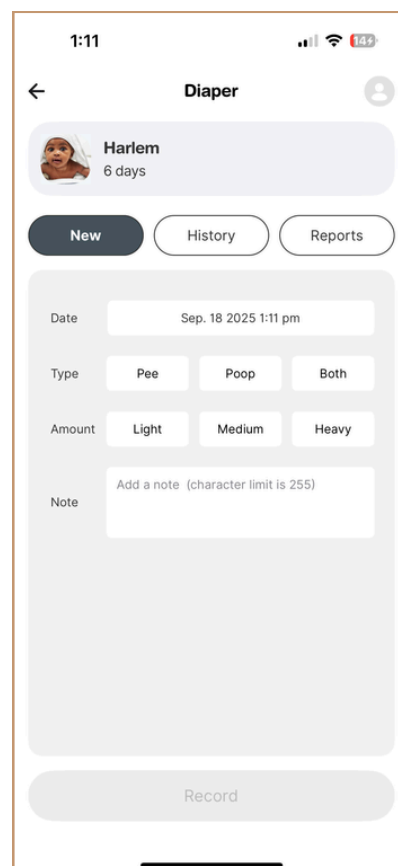
Heuristic Evaluation

Conducted by HITLAB

Minor Opportunities for Improvement

HITLAB's evaluation confirmed Woddle is a strong, adoption-ready platform, with only a few refinements suggested to further elevate clinician experience:

- **AI Chat Display:** Resolving the text overflow issues in conversations with Dara to ensure responses fit neatly within chat bubbles for better readability
- **Clarity in input options:** The categories “light,” “medium,” and “heavy” for diaper output (pee, poop, or both) are ambiguous and should be made clearer using examples.
- **Contact Section Context:** The purpose of the “Contact” feature is unclear; it only shows a title (“Contact”) and a message box without explanation or context.



Recommended Next Steps

To maximize impact, HITLAB recommends a focused, staged approach:

1. **Quick wins (0–2 months):** Fixing Dara's chat formatting, clarify output-input options, and add brief context in the Contact section.
2. **User Experience Enhancements (2–4 months):** Implementing background and expansion of user roles.
3. **Feature Expansion (4–6 months):** Inclusion of data-driven insights, personalized alerts, and additional sharing capabilities to promote long-term engagement and clinical value.

Heuristic Evaluation

Conducted by HITLAB

A2. Woddle Device



Strengths Identified

- **Precise scale:** The device is designed to detect precise weight changes, enabling weighted feedings.
- **Clean, Modern Design:** The device has a sleek and contemporary look that blends into the home environment and cleans easily.
- **Integrated System:** Combines multiple caregiving functions into a single device, reducing clutter and improving convenience.
- **Responsive Touchscreen:** The interface reacts quickly to touch, ensuring smooth and efficient use without delays.
- **User-Friendly Experience:** The simplicity of design and responsiveness create an intuitive, stress-free interaction for parents.
- **Simple Setup:** Device setup is straightforward, with neatly packaged wiring and clean, organized boxing that makes the initial experience stress-free.
- **Grows with Family:** Allows for an easy switch between multiple profiles.

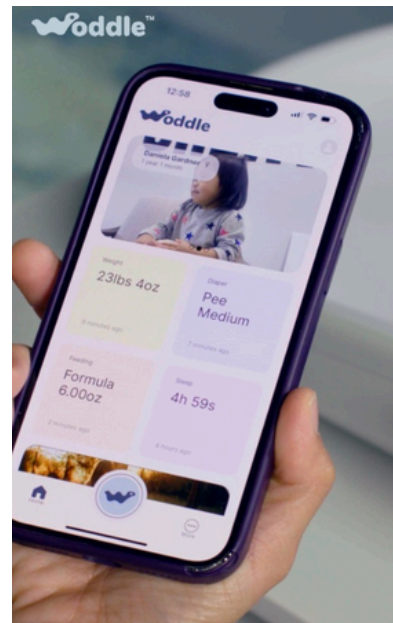
Heuristic Evaluation

Conducted by HITLAB

Minor Opportunities for Improvement

HITLAB's evaluation confirmed Woddle is a strong, adoption-ready platform, with only refinements suggested to further elevate clinician experience is

- **Wi-Fi Connectivity:** The device required multiple attempts (two tries) to successfully connect to Wi-Fi during setup, even when the phone was positioned directly next to the device.



Recommended Next Steps

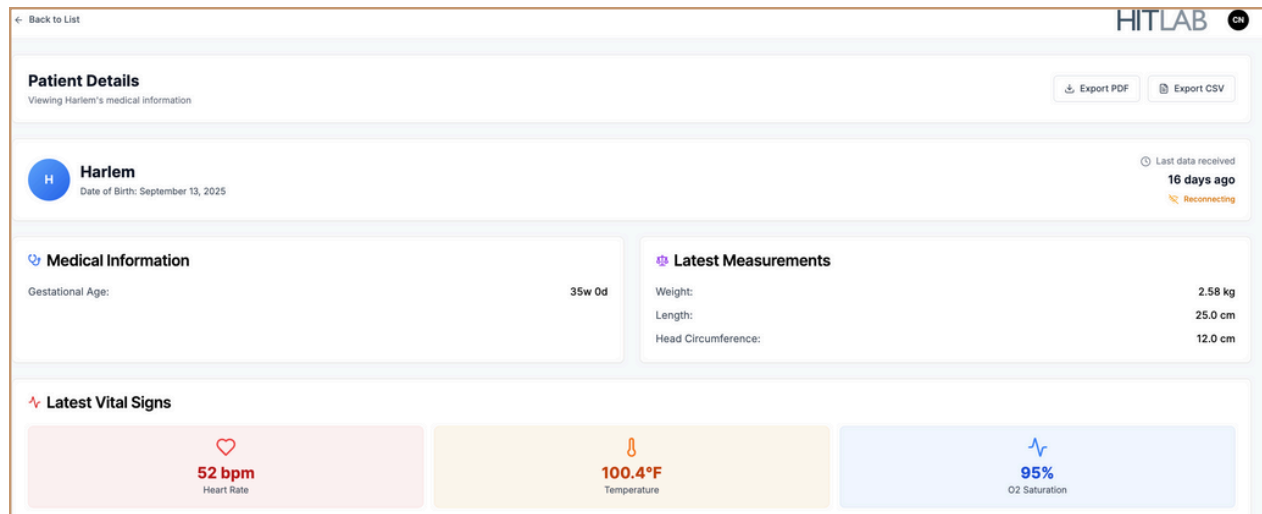
To maximize impact, HITLAB recommends a focused, staged approach:

1. **Provide Trend Insights:** Show parents patterns in sound usage (white noise, lullaby, classical) and light color preferences to identify what soothes their baby most.
2. **Enable Preset Settings:** Let parents create and save favorite combinations of light and sound directly from the app or device for quick access.

Heuristic Evaluation

Conducted by HITLAB

A3. Clinical Portal



Strengths Identified:

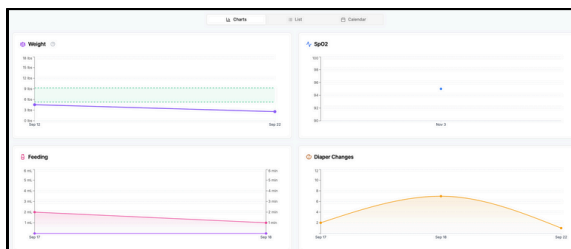
- **Clear Information Hierarchy**
 - Ability to visualize data based on workflow: Charts, List, Calendar.
 - Logical separation between Parent Observations (read-only) and Clinical Assessment (editable).
 - Color-coding (blue for family, green for clinical) enhances recognition and reinforces role segmentation.
- **System Feedback & Status Visibility**
 - "Last data received: 7 hr ago" and "Reconnecting" indicators show real-time sync and data freshness, essential for clinical reliability.
 - Timestamped "Clinical Record - [Date]" gives temporal clarity for audit and documentation.
- **Clean, Modern, and Low Cognitive Load UI**
 - Minimalist layout supports focus during chart review.
 - Simple labeling and icons improve scanability (e.g., stethoscope icon for "Clinical Record")

Heuristic Evaluation

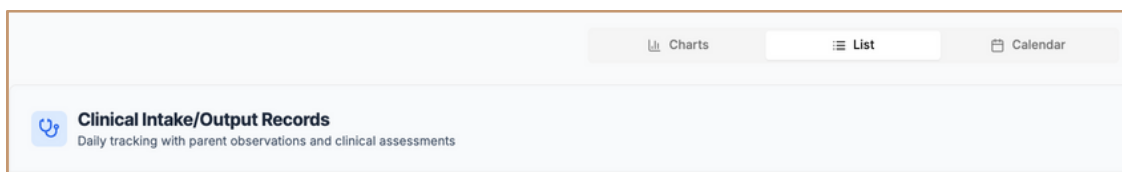
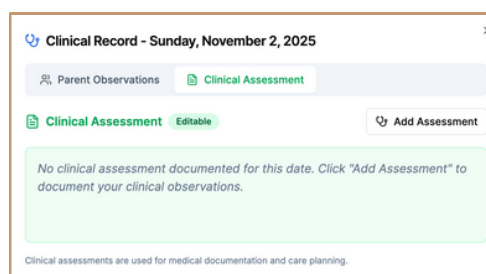
Conducted by HITLAB

Minor Opportunities for Improvement

HITLAB's evaluation confirmed Woddle is a strong, adoption-ready platform, with only refinements suggested to further elevate the clinician experience.



- **Export Customization:** This will allow providers to select what to include in the PDF or CSV: Clinical Assessments, Parent Observations, and Logs.
- **Improve Empty States for Efficiency:** Usage of the “No clinical assessment documented” area to offer quick-start templates and “+ Add weight note” or “+ Add feeding summary.”



Recommended Next Steps:

- **“Retry” Connection Errors**
 - Add a small manual “Retry Now” button to send a notification to users on the Woddle Baby App.
- **Improve Empty States for Efficiency**
 - Use the “No clinical assessment documented” area to offer quick-start templates:
 - “+ Add weight note” or “+ Add feeding summary.”
- **Add export customization options**, allowing providers to select what to include in the PDF/CSV, e.g. checkboxes for:
 - Clinical Assessments
 - Parent Observations
 - Measurements / Trends
 - Notes & Communication Logs

User Feedback

Reviewed by HITLAB

With approximate 4.8 star rating on Amazon.com, parents value its efficiency and time-saving benefits, as it integrates multiple functions into one device.

Overall, it provides both practical utility as well as emotional reassurance which gives parents a confidence and peace of mind while caring for their baby.

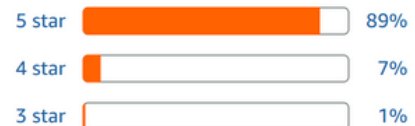
47/60 users reported feeling confident about tracking baby's growth using Woddle.

42/60 users said Woddle improved their daily routine as a parent.

Customer reviews

 4.8 out of 5

96 global ratings



I love the product. The baby warmer is amazing and my favorite feature. The buttons are easy to use and it's very user friendly. Overall, I really love the product.

Her losing weight was the biggest indicator that there was something more wrong. Im so happy we had the Woddle pad to help us make the decision to take our daughter to the ER.

The Woddle platform and its innovative work have been featured across multiple renowned media outlets, including Forbes, Yahoo Life, The San Francisco Standard, FOX 59, and several others, as it continues to improve the norms and standards of child care for the future.



Conclusion

The heuristic evaluation conducted by HITLAB underscores Woddle as an innovative, family-centered health platform with strong potential to enhance caregiving as well as early infant health. With integration of precise weight measurement, daily care tracking, and AI-driven guidance into one cohesive system, Woddle empowers parents to monitor their baby's growth with confidence while providing pediatricians with reliable, real-time data for better-informed care.

These strengths make Woddle a valuable tool for improving communication between families and providers and promoting proactive, data-informed infant health management.

To strengthen the platform in a refined manner, measures such as enhancing Wi-Fi connectivity, clarifying input categories, and expanding provider export capabilities will further demonstrate a robust foundation in the platform's usability, design clarity, and clinical relevance. Its thoughtful balance of functionality and simplicity makes it a well-suited, easy-to-use solution in caregiving practices at home and for hospital-at-home programs.

For parents, providers, and the broader healthcare ecosystem, Woddle represents more than a smart nursery device that connects preventive and personalized pediatric care. Woddle is well-positioned to become a trusted companion in the evolving landscape of digital health and early childhood development with its ongoing user-centered updates and data-driven enhancements.



“

“What makes Woddle remarkable is its ability to turn everyday care giving moments into meaningful health insights. The combination of precision measurement, intuitive design, and personalized guidance empowers parents to confidently monitor their baby's development while strengthening communication with healthcare providers.”

**— Stan Kachnowski, Chair,
HITLAB**

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HITLAB



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further inquiries**



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