BUILDING HAPI: PILOTING AN AI-DRIVEN SUPPORT SYSTEM FOR INDIVIDUALS WITH FASD

Duologue Systems

Willow Winds SUPPORT NETWORK

SUPPORTED BY: WILLOW WINDS SUPPORT NETWORK

HOW DO WE MAKE COMPLEX SYSTEMS SIMPLE?

The Challenge

Individuals with Fetal Alcohol Spectrum Disorder (FASD) may face significant barriers navigating today's increasingly digital society. Despite rapid technological advancement, these tools often fail to accommodate neurodevelopmental differences, creating a concerning pattern of exclusion rather than inclusion.

People with FASD sometimes struggle with the fragmented nature of essential support systems - from healthcare and social services to education and justice systems. This navigation challenge has profound consequences, leading to higher rates of adverse outcomes including homelessness, justice system involvement, and mental health crises. Research shows 90% of individuals with FASD may experience a mental health condition during their lifetime, and they are significantly overrepresented in justice systems where their prevalence ranges from 10.9% to 23.3% among youth in custody.

The economic impact is equally significant. The lifetime cost associated with supporting an individual with FASD has been estimated at $1.1-1.5 million CAD - costs that could potentially be reduced through more effective, accessible intervention approaches that bridge these gaps rather than widen them.

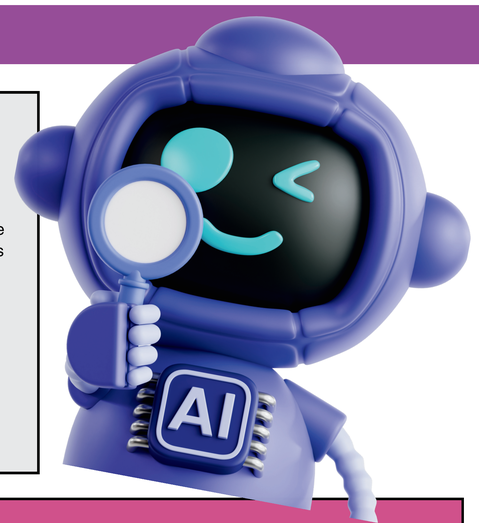
Building Hapi: An Artificial Intelligence (AI) Companion

Hapi's architecture leverages SMS technology to deliver AI-generated counselling services to vulnerable populations without requiring data or WiFi access. At its core, an Inference Server hosts the main Action Selector agent and subsidiary agents with specific functions. The main agent orchestrates subsidiary agents by delegating actions to alert to a crisis, generate text, search the web, or review the final message. These agents function by interfacing with large language models through APIs.

The system processes user inquiries through an SMS Gateway where the “Action Selector” determines the appropriate subsidiary agent to handle each request. These agents follow customized scripts to query relevant LLMs and may request additional information from users when necessary. Hapi's SMS Optimization layer transforms complex AI-generated responses into effective communications by:

- Adapting content to 160-character limitations
- Simplifying language for users with limited technology literacy or cognitive challenges
- Prioritizing accuracy and relevance for vulnerable populations
- Implementing safeguards to detect crisis situations requiring human intervention

Together, these components ensure vulnerable users receive accessible, appropriate support through SMS—a universal communication channel available on virtually any mobile phone regardless of internet access, smartphone capabilities, or technical literacy—while addressing the inherent constraints of text-based AI assistance.



Ongoing Pilot Initiative: Willow Winds Support Network InReach Program

Overview

To evaluate Hapi's practical effectiveness, a pilot was launched in partnership with Willow Winds (A support network in Edmonton that has a program specializing in individuals transitioning from incarceration with FASD). The phase 1 of the pilot, which began in January 2025 and continues through to April 2025, currently involves 6 participants enrolled in Willow Winds' "InReach" program, all of whom have FASD and are recently released or approaching release from correctional facilities. We aim to have a total of 10 participants by the end of the pilot.

Implementation

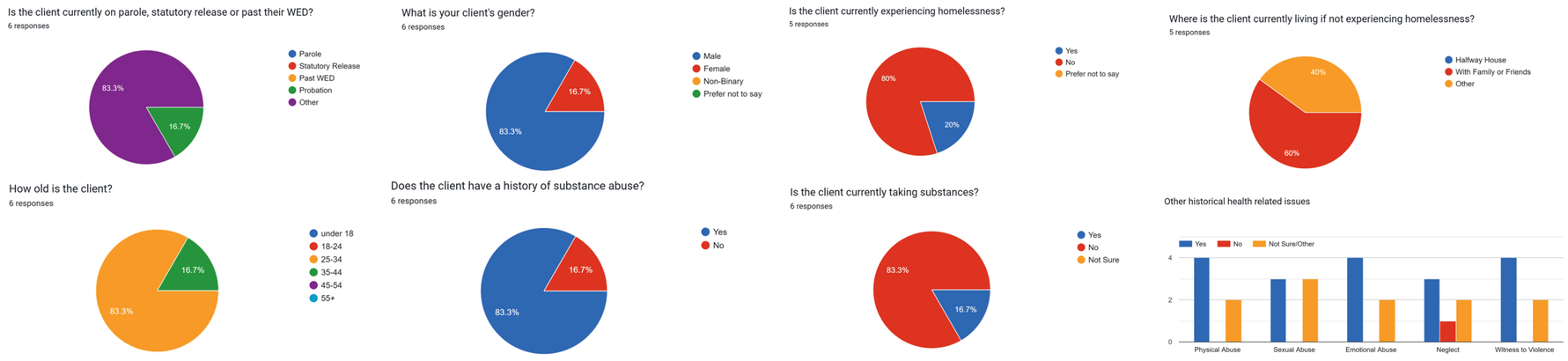
Each participant received a smartphone and personalized onboarding for Hapi's SMS support system to navigate housing, employment, and disability resources. The pilot aims to assess Hapi's usability, participant engagement levels, and the effectiveness of AI-generated responses in addressing real-world needs. Throughout this process, Willow Winds staff and Duologue Systems are collaborating closely, ensuring proper ethical oversight including informed consent and privacy safeguards while continuously gathering feedback for system refinement.

Preliminary Findings

Initial results from the ongoing Willow Winds pilot are encouraging, with several positive indicators emerging:

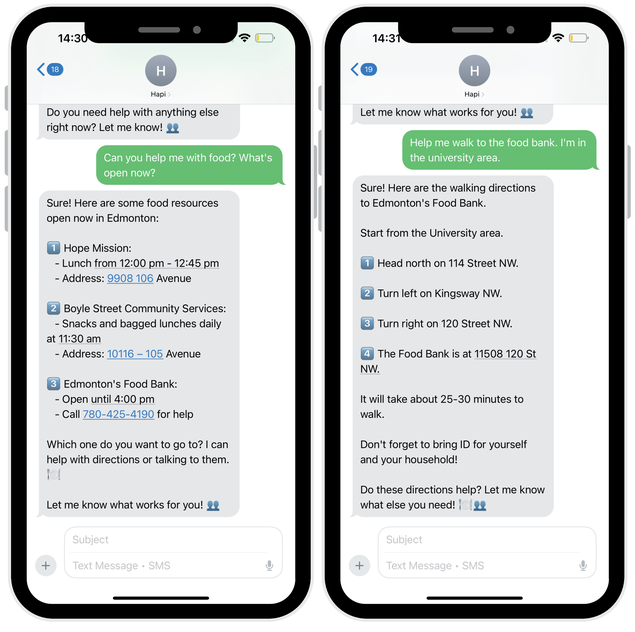
- High Usability
  - Participants report finding Hapi intuitive and easy to integrate into their daily routines. The SMS-based interface effectively removes technological barriers, as participants only need basic texting skills. All six participants have successfully engaged with the system without extensive training, and none have dropped out due to technological frustration. This validates the design choice of utilizing a low-tech medium with simplified language for individuals who might otherwise struggle with complex applications or websites.
- Active Engagement
  - Users are engaging frequently with Hapi, demonstrating a genuine need for on-demand support. Throughout the initial pilot phase, participants have exchanged messages regularly, with 2 out of 6 particpants reaching out multiple times weekly for assistance or information. Their inquiries span diverse topics, from practical assistance such as bus routes to food supports to emotional support. Notably, engagement has remained steady and even increased as trust in the AI system grows. This sustained usage suggests Hapi is becoming an integrated part of participants' support networks rather than merely a technological novelty.
- Effective AI Support
  - Hapi's responses have proven consistently prompt, relevant, and helpful in most interactions. The system typically replies within seconds, providing near-instant assistance that contrasts favorably with the wait times associated with human caseworker contact. Users report that Hapi's answers generally address their questions appropriately and in language they can easily understand. Only a small percentage of responses have been flagged for being off-target or requiring follow-up. Participants express high satisfaction with both the informational content and encouraging tone of Hapi's communications. For example, when one user asked about accessing tax refunds and cheques through mail, Hapi was able to provide exact times based on the user's location (data provided by the user) and filing type (paper vs electronic).

Participant Overview



Topics of Conversation with Hapi

Sample Messages with Hapi



Impact and Innovation

Hapi’s early success demonstrates how AI-driven personalization can significantly bridge gaps in social services. Individuals with FASD may fall through the cracks of traditional overburdened support systems – especially during transitions like re-entry. By providing an always-available digital companion, Hapi ensures that help is available exactly when it’s needed, in between and alongside human interventions. This bridging of service gaps means that even at 2 AM or on a holiday, a client can get guidance (be it a reminder to take medication or tips to cope with a stressful situation) instead of going without support. The personalized, cross-sector nature of the AI support breaks down the silos between justice, health, and community services.

In practice, this might look like Hapi helping a user understand a probation requirement (justice), while in the next moment connecting them to a food bank or counseling resource (social/health service). Such coordinated assistance was previously hard to deliver at scale – Hapi makes it feasible by unifying information and interventions across domains in one conversation thread. Willow Winds has noted that this approach would ensure no question goes unanswered, which is especially critical for clients who may be too overwhelmed to ask for help in person.

A major anticipated outcome of Hapi’s support is reducing recidivism among FASD-affected individuals. Research shows that about 68% of released prisoners (general population) are rearrested within three years, often due to technical violations or failure to comply with re-entry plans rather than new crimes. For those with FASD, these challenges may be amplified. Hapi can directly target those risk factors: it can send reminder texts for court dates (future Hapi development) or curfews, break down complex instructions into doable steps, and answer urgent questions (e.g., “What do I do if I lost my housing paper?”) before a minor issue becomes a major violation. By providing critical navigation support through the complex web of resources like housing, employment, and healthcare, Hapi helps clients meet their obligations and solve problems proactively.

While long-term recidivism rates from the pilot are not yet available, the combination of high engagement and positive user feedback suggests that participants felt more equipped to stay on track. Over time, widespread use of tools like Hapi could significantly lower re-offense rates by keeping justice-involved individuals connected to support and less isolated. For policymakers focused on public safety, this points to an innovative strategy to improve outcomes and reduce the high costs (both human and financial) associated with recidivism.

Hapi also promotes greater equity and inclusion in service delivery. Historically, vulnerable groups such as those with FASD may have been underserved by mainstream technological innovations – many tools are not adapted for cognitive disabilities or assume a level of literacy/privilege that excludes a portion of the population. Hapi represents a shift: it is an AI built for a marginalized neurodivergent group with their direct input. By tailoring communication to the individual, Hapi ensures that support is not just available to those who can navigate apps or bureaucratic processes. This kind of personalization helps level the playing field. Each user receives information in a way they can understand and act on, which is a step toward information equity — making sure people are not left behind simply because standard services were not designed for them.

Moreover, Hapi’s friendly AI persona can reduce stigma; users have a safe, private space to ask questions without fear of judgment, which can empower them to be more proactive in seeking help. The innovation here is not just technological but also in approach: using AI empathetically to extend the reach of social services. This work demonstrates how AI solutions can address service gaps, promote equity, and inform policy reforms by offering scalable yet personalized tools to improve outcomes for individuals with FASD.

Next Steps

Following the pilot, there is a clear opportunity to scale the Hapi system to support more individuals and communities. The underlying AI architecture is modular and extensible, meaning new regions or service domains can be added by plugging in additional knowledge bases or training modules without rebuilding the core system. In the near term, Duologue Systems plans to roll out Hapi to a larger cohort of users in partnership with other FASD networks and possibly community corrections programs in different jurisdictions. Because the platform proved it can operate via SMS with minimal infrastructure, multiple new regions can be set up with minimal cost and setup time. There is also interest in adapting Hapi for related use cases – for example, youth with FASD exiting the foster care or juvenile justice system, or individuals with other neurodevelopmental conditions who face similar re-entry challenges. The pilot’s success highlights the potential for scalable, AI-driven tools to support vulnerable populations.

As more data is gathered, the AI models can be further refined to handle more complex requests and languages (including possibly Indigenous languages or local dialects, to better serve diverse communities). An important aspect of scaling will be maintaining the quality and personalization of support; thus, ongoing co-design with users and continuous learning from pilot feedback will guide Hapi’s evolution. Ultimately, we envision Hapi as a universally accessible digital companion that anyone with FASD (or similar support needs) can text for assistance from any device, anywhere, anytime – an ethically designed AI extension of the social safety net that meets people where they are.

Interested in trialing Hapi? Contact Shay Sharma - shay@duologuesystems.ca