



Proposal on
Improving the Accessibility of Online Government
Service

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Problem Statement

People with disabilities face significant challenges when accessing government services, particularly in an online or mobile environment. These barriers can vary depending on the disability:

Visual Impairments: People who are blind or visually impaired may struggle to navigate complex websites, especially if they are not fully optimised for screen readers.

Hearing Impairments: Many government services rely on written or auditory communication, leaving out those who are deaf or hard of hearing, mainly when information is not captioned or translated into sign language.

Cognitive and Learning Disabilities: Some users may struggle with complicated interfaces or government jargon, making it hard to understand forms or processes.

Physical Disabilities: Those with limited motor functions may find using a mouse or keyboard hard, making web navigation difficult.

Objectives

The key objective is to use AI to provide seamless, personalised, and equitable access to online government services for people with disabilities. Additionally, AI can support carers, who often need to access services on behalf of people with disabilities, while ensuring ethical AI use to prevent discrimination or bias.

Develop the Core AI-Driven Solution

1. AI-Powered Accessibility Hub

The Accessibility Hub will be an AI-driven platform designed to meet the unique needs of people with various disabilities. It will integrate multiple accessibility technologies into one seamless interface for interacting with government services.

Key Features of the Accessibility Hub

- **Voice-Activated Interfaces (NLP):**
 - AI-powered Natural Language Processing (NLP) will allow users with limited mobility or visual impairments to interact with the platform using voice commands.
 - **Example:** Similar to how Google Assistant or Amazon Alexa help users perform tasks like setting reminders or checking the weather, this system would allow users to apply for benefits or check the status of their government applications using voice commands. For example, a person with a visual impairment could ask, “What documents do I need to upload for my disability pension?” the system would verbally list the required documents.
- **AI-Based Screen Readers:**
 - Many web-based government forms are problematic for standard screen readers to interpret because they are too cluttered or complex. This AI-powered screen reader will summarise and simplify the information, turning complex bureaucratic forms into simpler, more straightforward language.
 - **Example:** A screen reader like JAWS (a commonly used tool by the visually impaired) could be augmented with AI to convert a complex legal form into simplified, plain language that is more straightforward to understand. The AI can highlight key actions required, such as signatures or uploading documents.

- **Simplified Navigation:**

- The AI will analyse the user's behaviour and predict the services they might need based on previous interactions, disability type, and government data. This can help reduce the overwhelming number of website options and tailor the journey to the user.
- **Example:** A user applying for the National Disability Insurance Scheme (NDIS) benefits will automatically see links to healthcare assistance and transport services based on their history. This minimises the need to search through unrelated services.

- **Assistive Chatbots:**

- AI-powered chatbots will provide real-time assistance to help users navigate the system. These bots would be explicitly designed for people with disabilities, offering step-by-step guidance through forms, applications, or service inquiries.
- **Example:** Like many companies with customer service chatbots on their websites, users could interact with a government chatbot to apply for disability support. The AI chatbot would walk the user through each step of the form, automatically filling in repetitive fields and explaining jargon in plain language.

2. AI Tools for Carers and Supporters

Carers often face the administrative burden of managing services on behalf of people with disabilities. AI can simplify this by providing tailored tools that streamline the process for carers.

Critical Features for Carers:

- **Carer Dashboard:** A personalised dashboard that helps carers manage multiple accounts, applications, and government services for those they care for. The dashboard would provide consolidated access to all services, assisting carers to stay organised.
 - **Example:** A carer supporting someone needing healthcare and housing assistance can track services, deadlines, and application statuses in one place. This dashboard will automatically flag urgent tasks (e.g., upcoming renewals for healthcare benefits), reducing the mental load on the carer.
- **Predictive Assistance:** AI could use past interactions and service use to predict future needs and send proactive alerts to carers. For instance, it could notify carers when new services or benefits become available that match the needs of the individual they care for.
 - **Example:** If a new transportation service becomes available for individuals with mobility impairments, the AI can notify the carer immediately and provide easy instructions for how to apply.
- **Real-Time Translation:** AI can provide real-time translation of forms and processes for carers who may speak different languages or need assistance interpreting complex government documents.
 - **Example:** Just like how Google Translate allows real-time translation of websites, this feature could translate forms and documents into the carer's preferred language, allowing them to understand the application process better.

3. AI Ethics and Fairness

Ensuring that AI is applied ethically and doesn't unintentionally disadvantage people with disabilities is essential.

Key Ethical Features:

- **Bias Detection in AI Models:** Regular AI audits will monitor for biases, especially in decision-making models determining access to services (e.g., eligibility for disability benefits). AI should not favour certain disability types or demographics over others.
 - **Example:** In 2020, the UK government faced backlash when an algorithm used to determine student grades during the pandemic disproportionately downgraded students from poorer backgrounds. AI models would undergo regular audits to ensure fairness and avoid similar issues.
- **Ethical AI Framework:** An AI Ethics Committee of disability advocates, government officials, and technical experts will oversee the development and deployment of AI systems. This committee would ensure AI is used responsibly, transparently, and in a way that protects users' rights.
- **Preventing Disadvantage:** The solution would be designed with input from accessibility consultants and user feedback loops to ensure no individual is left behind. Clear policies would be in place to ensure that those who can't access AI solutions (due to lack of tech or connectivity) still have alternative methods of access.

4. Stakeholder Engagement

Co-Design with the Disability Community

- The platform should be co-designed with real users—people with disabilities and their carers. Conducting user workshops and usability testing with real users will ensure that the solution meets the needs of the disability community from day one.
- **Example:** Companies like Microsoft and Apple engage with disability advocates when developing new accessibility features. This ensures the technology reflects the real-world needs of those who use it.

- **Partnerships with Disability Organizations:** Collaborating with organisations such as the Australian Federation of Disability Organizations (AFDO) or Vision Australia to test the platform and ensure it's inclusive and accessible across various disabilities.

5. Building Public Trust

Building public trust is essential, especially when dealing with sensitive data and automated systems.

Key Trust-Building Features

- **Transparency in AI Decisions:** The AI system will provide users with clear, understandable explanations of decisions. For instance, the AI will explain why a benefit application is flagged for additional review.
 - **Example:** Similar to how social media platforms like Facebook provide transparency on why a post is flagged or removed, this platform will explain why a user's service request may have been delayed or flagged.
- **Data Privacy and Security:** The platform will ensure user data is encrypted and protected. Clear data use policies will inform users exactly what information is being collected and how it's used.
 - **Example:** Much like the GDPR framework in Europe, users can request their data, see how it's being used, and have the option to delete personal data if desired.

Identifying Emerging AI Trends and Future Adaptations

Emerging AI Trends:

- **Conversational AI:** Future improvements in conversational AI could allow for more fluid, natural interactions with government services, further simplifying the experience for users with disabilities.
 - **Example:** Like chat-based AI (like ChatGPT) can hold complex conversations today, future government services might allow people to complete applications through a conversational interface.
- **Augmented Reality (AR):** For people with physical disabilities, AR technology could create virtual environments that allow users to “visit” government offices without leaving their homes, interacting with services more effectively.
- **Personalised AI:** AI could become more predictive, learning the specific needs of individuals and proactively tailoring services to their needs, making the process faster and more efficient over time.

Concrete Example

Scenario Example (Person with Visual Impairment):

Sarah, who is visually impaired, needs to renew her disability pension. She accesses the platform using voice commands, where the AI verbally guides her through the necessary steps. The platform reads the application form aloud and simplifies the instructions. Using voice dictation, Sarah filled out the form without any external assistance. The AI ensures all fields are correctly completed and submits the form on her behalf.

Carer Example

Tom, a carer for someone with intellectual disabilities, uses the Carer Dashboard to track various services and appointments. The AI predicts that Tom’s client must renew their NDIS plan soon and alerts Tom beforehand. It also helps Tom by automatically filling in repetitive fields and reminds him of other upcoming deadlines, reducing administrative burden.

Prototype or Simulation

For the prototype, we have developed a sample UI dashboard that demonstrates how it might look and function. It is built using simple HTML, CSS, and JavaScript. You can access it through the provided link.

Hosted Link: <https://iaogs.netlify.app/>

GitHub: <https://github.com/SushanGhimire/IAOGS>

Screenshots



