

## **MAJOR PROJECT SYNOPSIS**

### **TEAM MEMBERS:**

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### **TITLE OF PROJECT:**

Prihub: A Full Stack Platform for Individuals with Cognitive Disabilities

### **TYPE:**

Software Based

### **TECHNOLOGY USED:**

- **Front End:** HTML, CSS, JavaScript, React.js
- **Back End:** Node.js, Firebase (Authentication + Database)
- **AI Chatbot:** to assist the users for support or help.
- **ML:** (Text to Speech Converter: OCR), Screen Reader Compatibility

### **PROBLEM STATEMENT:**

Individuals with cognitive and visual impairments often face significant barriers when accessing online platforms due to poor accessibility design, lack of inclusive features, and limited community support. Existing platforms typically fail to provide clear communication, accessible resources, or interactive tools tailored to their needs. This leads to reduced engagement, shorter session durations, and exclusion from digital communities. There is a need for a web platform that empowers these users by integrating accessibility-first design (including screen reader support), a conversational chatbot for guided navigation, and community features—developed within SDLC guidelines to ensure quality, maintainability, and scalability.

### **OBJECTIVE AND SCOPE:**

#### **- Objective:**

The primary objective of this project is to design and develop an accessible full-stack web platform that caters specifically to individuals with cognitive and visual impairments. The platform aims to:

- Provide accessible digital resources
- Offer interactive support
- Foster a sense of community
- Enhance user engagement and retention
- Follow SDLC best practices

**- Scope:**

The scope of this project is to design and develop an accessible full-stack web platform that supports individuals with cognitive and visual disabilities. The platform will focus on providing accessible resources, community support, and interactive tools to enhance user engagement and usability. Key features include screen reader compatibility, simplified and intuitive UI/UX, chatbot integration for guided navigation, and Firebase-based real-time data handling. The system will be developed using HTML, CSS, JavaScript, Node.js, and Firebase, adhering to Software Development Life Cycle (SDLC) guidelines. The platform will serve as a digital support environment that promotes independence, user empowerment, and inclusive access to information and social interaction.

**PROBLEM DESCRIPTION:**

Despite widespread digitization, individuals with cognitive and visual disabilities still face major obstacles in accessing online platforms. Challenges such as inaccessible interfaces, complex content, and the lack of assistive tools or community support often lead to exclusion and frustration.

Traditional websites rarely include essential accessibility features like screen reader compatibility, text-to-speech, simplified text, and keyboard navigation, making it difficult for users to interact and retain information. The absence of interactive guidance further compounds feelings of isolation.

**PriHub** addresses these gaps with an inclusive, full-stack web platform built using HTML, CSS, JavaScript, Node.js, and Firebase. It integrates AI-powered chatbot support, cognitive tools (text-to-speech, simplified text, reminders), and accessible design to empower users to navigate, communicate, and manage their needs confidently and independently.

**PROPOSED SOLUTION:**

**1. Accessibility-First Design**

- Screen Reader Support: Semantic HTML ensure compatibility with screen readers.
- Keyboard Navigation: All features operable without a mouse.
- Visual Adjustments: High-contrast modes, dyslexia-friendly fonts, adjustable text size.

- Simplified UI: Clean layout and plain language to aid cognitive accessibility.

## **2. Interactive Tools & Guidance**

- AI Chatbot: Context-aware, text-to-speech-enabled assistant helps with navigation and support.
- Reminders & Notes: Built-in tools for setting tasks and taking personal notes.
- Onboarding Help: Tutorials, tooltips, and contextual chatbot guidance.

## **3. Community & Resource Hub**

- Curated Resources: Educational materials, guides, and health information.
- Support Forums (Planned): Future feature for peer engagement and knowledge sharing.
- Professional Contact: Booking and messaging with therapists or support staff.

## **4. Performance & Engagement Optimization**

- Real-Time Feedback: Visual/audio cues keep users informed after every action.
- Analytics-Driven Improvements: Anonymous metrics guide feature refinement.
- Continuous Updates: Ongoing improvements based on user and expert feedback.

## **5. Scalable Full-Stack Architecture**

- Frontend: HTML, CSS, JavaScript — responsive and accessible across devices.
- Backend: Node.js and Express manage APIs and chatbot requests.
- Authentication & Database: Firebase for secure login and real-time data storage.
- SDLC Practices: Modular design, version control, testing, and continuous deployment.

## **6. Target Audience**

- People with cognitive or visual disabilities (ADHD, autism, dementia).
- Caregivers, therapists, NGOs, and inclusive education providers.

### **MODULES:**

- **Device Module:** Provides the user interface with accessible tools like text-to-speech, simplified text, high-contrast modes, and real-time chatbot display.
- **Control Module:** Handles authentication, session management, and coordinates user actions with backend processes.
- **Communication Module:** Manages secure data exchange between the frontend and backend, including chatbot queries and responses.
- **Mobile Application Module (Optional):** Offers a mobile app for remote access, notifications, and offline resources to enhance user convenience.

### **BENEFITS OF PROPOSED PROJECT TO THE USER/ SOCIETY:**

1. **Digital Inclusion:** PriHub bridges the accessibility gap by allowing people with cognitive and visual impairments to use web platforms independently. This promotes fair access to essential services like education, healthcare, and communication.

- 2. Enhanced Accessibility:** The platform integrates assistive tools such as text-to-speech, high-contrast mode, simplified language, and keyboard-friendly navigation—making it easier for users to understand and interact with content.
- 3. Empowerment & Independence:** Users can manage their daily routines using reminders, notes, and chatbot assistance—enabling them to perform tasks without external help and boosting their self-reliance.
- 4. Emotional & Peer Support:** With features like the AI chatbot and upcoming community forums, users receive real-time help and emotional encouragement, reducing isolation and promoting social interaction.
- 5. Support for Caregivers & Therapists:** Caregivers and professionals can use the platform to guide users remotely, schedule sessions, and provide personalized support, improving care coordination and efficiency.
- 6. Education & Awareness:** PriHub serves as a learning hub, offering resources for users and their families. It also raises awareness about cognitive disabilities and encourages inclusive design practices.
- 7. Scalable & Cost-Effective:** Built with modern, open-source tools, PriHub is low-cost and adaptable. It can be deployed across institutions or customized for different user groups and community needs.

#### **DISTINCTIVENESS:**

PriHub stands out as an **inclusive, accessibility-first digital platform** built specifically for individuals with **cognitive and visual impairments**—a focus often overlooked in mainstream applications.

#### **Core Distinct Features:**

- 1. Advanced Accessibility Tools**  
Goes beyond standard compliance with **Text-to-Speech, dyslexia-friendly modes, ARIA support, and keyboard navigation.**
- 2. AI-Powered Chatbot**  
Integrates an **OpenAI-based chatbot** for real-time, conversational support—making navigation and help seamless.
- 3. User-Centric Productivity Panel**  
Offers local, private tools like **reminders** and **notes**, ideal for users with memory or attention challenges.

#### **4. Community-Oriented Vision**

Planned features like **peer forums** and **therapist booking** promote social inclusion and mental well-being.

#### **5. Scalable Open Tech Stack**

Built with **HTML, CSS, JS, Node.js, and Firebase**, making it **low-cost**, easily **scalable**, and suitable for NGOs, schools, and health orgs.

#### **6. Empathy-Driven Design**

Designed from the ground up for users with special needs—not as an add-on, but as a core focus.

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**SUBMITTED BY:**

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