



Autism Spectrum Disorder (Asd) Screening System Using Web-Based Questionnaire

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Abstract

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental condition characterized by difficulties in social communication, behavior, and sensory processing. Early identification of ASD plays a crucial role in providing timely intervention and improving developmental outcomes. This project presents the design and development of a Web-Based ASD Screening System that automates the preliminary screening process using an interactive questionnaire interface. The system leverages modern web technologies such as React, TypeScript, and Tailwind CSS for the frontend and Supabase as the backend service to ensure efficient data handling, scalability, and security. The questionnaire is structured to evaluate behavioral indicators associated with ASD based on validated screening frameworks. User responses are processed in real time to generate an assessment summary, helping parents, caregivers, and educators identify potential early signs of ASD. The system is fully responsive, allowing access across desktop and mobile platforms, and emphasizes user privacy through secure authentication and encrypted data storage. This web-based solution enhances accessibility, reduces manual effort, and bridges the gap between awareness and professional diagnosis. Overall, the system demonstrates how technology can support early detection, encourage timely intervention, and promote autism awareness **in communities**.

Keywords: Autism Spectrum Disorder (ASD), Web Application, Screening Questionnaire, React, Supabase, Early Detection

1. INTRODUCTION

In today's technology-driven era, digital healthcare systems are redefining how medical assessments and diagnoses are performed. The integration of web-based platforms and intelligent data management systems facilitates early disorder identification, enhances accessibility, and supports efficient health information handling. Among various developmental conditions, **Autism Spectrum Disorder (ASD)** is a neurodevelopmental disorder characterized by difficulties in social communication, restricted interests, and repetitive patterns of behavior. Early identification of ASD is vital, as timely therapeutic interventions can significantly improve the quality of life for affected individuals and their families. However, in many regions, access to specialized diagnostic resources remains limited due to financial constraints, geographical isolation, and lack of awareness.

The **Autism Spectrum Disorder (ASD) Screening System Using Web-Based Questionnaire** aims to address these challenges by providing a cost-effective, user-friendly, and accessible digital platform for preliminary ASD screening. The system enables users—including parents, caregivers, and educators—to complete a standardized behavioral questionnaire online and receive immediate feedback regarding potential ASD risk levels. Rather than replacing medical diagnosis, the system is designed to function as a **preliminary screening and awareness tool** that encourages early consultation with healthcare professionals.

Technically, the proposed system employs **modern web technologies** for responsive design, real-time computation, and secure data management. The frontend is implemented using **React, TypeScript, and Tailwind CSS**, ensuring an interactive and visually consistent user interface. The backend is powered by **Supabase**, an open-source backend-as-a-service platform that supports authentication, secure cloud data storage, and serverless computation through **Supabase Edge Functions**. This architecture provides seamless communication between client and server, ensuring accurate result generation and efficient user experience.

The system architecture comprises four major modules: **(1) Consent Form, (2) Demographic Information, (3) Questionnaire Section, and (4) Result Display**. The process begins with obtaining user consent and demographic inputs, followed by completion of a structured behavioral questionnaire based on validated ASD screening frameworks. Once responses are submitted, backend algorithms compute a screening score and classify the likelihood of ASD traits into low, moderate, or high categories. Results are displayed in an interpretable format, enabling users to understand their outcomes clearly and take appropriate follow-up actions.

From a technological standpoint, this project demonstrates the convergence of **web development and healthcare informatics**. It shows how cloud-enabled platforms can automate screening workflows, improve data reliability, and ensure scalability in digital health systems. The use of Supabase as a backend solution ensures robust security, easy deployment, and extensibility—making the system suitable for both research and public health applications.

From a societal perspective, the ASD Screening System fosters **inclusive digital healthcare** by extending screening accessibility to under-resourced or remote communities. It promotes early awareness, bridges the gap between families and healthcare professionals, and contributes to reducing diagnostic delays.

Overall, this project embodies an innovative approach to integrating technology with behavioral science. It highlights how web-based systems can be designed not only for efficiency and accuracy but also for **ethical, accessible, and socially impactful healthcare applications**. The system's modular, scalable design serves as a foundation for future enhancements such as AI-driven analytics and multilingual support, further strengthening its potential contribution to digital healthcare innovation.

2. LITERATURE REVIEW

The evolution of healthcare technology has significantly transformed the diagnosis, treatment, and monitoring of various medical and psychological conditions. With the rapid advancement of digital systems and online platforms, mental health assessment tools have become increasingly accessible to the public. Among these developments, **Autism Spectrum Disorder (ASD)**—a complex neurodevelopmental condition characterized by deficits in communication, social interaction, and repetitive behavioral patterns—has received growing attention from researchers and healthcare professionals. Early identification of ASD is critical for enabling timely interventions that can improve developmental outcomes and quality of life.

Traditionally, ASD diagnosis has relied heavily on **clinical observation** and **psychometric evaluations**. Conventional approaches are reliable, they often involve time-consuming procedures and require in-person assessments. With the rise of **web-based systems and cloud computing**, the automation of ASD screening processes has become possible, thereby improving efficiency, reducing human error, and enhancing accessibility for families in remote or under-resourced areas. The increasing adoption of online ASD

screening tools reflects a broader transition toward **data-driven, interactive, and inclusive healthcare solutions**.

2.1 Existing System

Existing ASD screening methods primarily employ **paper-based questionnaires** or **offline desktop applications**. Commonly used diagnostic tools include the **Modified Checklist for Autism in Toddlers (M-CHAT)**, **Autism Spectrum Quotient (AQ)**, and **Childhood Autism Rating Scale (CARS)**. Although these tools have been validated for clinical use, they generally require professional supervision, manual scoring, and interpretation, making them less feasible for large-scale, independent use.

Recent attempts to digitize these assessments have resulted in several **web-based implementations**, yet most of them remain **static and limited in functionality**. While such systems allow online form completion, they typically lack automated result computation, secure user authentication, or cloud-based data management. Moreover, these systems often fail to comply with modern **data privacy standards**, which increases the risk of data breaches or unauthorized use. Consequently, existing solutions are inadequate for scalable, real-time, and secure ASD screening in public health contexts.

2.2 Limitations of the Existing System

Despite providing foundational diagnostic frameworks, existing ASD screening tools exhibit several technical and operational limitations:

1. **Manual Scoring and Interpretation:** Most systems rely on human evaluation, which can introduce delays and subjective errors.
2. **Lack of Real-Time Feedback:** Users are unable to obtain immediate results or risk-level analysis.
3. **No Data Storage or Tracking:** Historical records of screenings are not preserved, preventing progress tracking over time.
4. **Limited Accessibility:** Many systems are not optimized for cross-platform use, limiting usability on mobile devices.
5. **Weak Data Security:** Absence of robust authentication and encryption exposes user data to security vulnerabilities.
6. **Low User Engagement:** Outdated or non-interactive interfaces reduce user motivation and participation.

These limitations emphasize the necessity for a **modern, automated, and secure web-based system** capable of handling user data ethically and providing real-time, meaningful feedback to support early detection.

2.2 Proposed System

The proposed **Autism Spectrum Disorder (ASD) Screening System Using Web-Based Questionnaire** addresses the above challenges by combining modern web technologies with a **cloud-based backend architecture** to create a secure, efficient, and user-friendly digital screening platform.

The system's frontend is built using **React, TypeScript, and Tailwind CSS**, which ensures a responsive, visually appealing, and accessible user experience. The backend employs **Supabase**, an open-source backend-as-a-service (BaaS) solution that manages user authentication, encrypted data storage, and serverless computation through **Supabase Edge Functions**. This architecture enables seamless communication between client and server, ensuring accurate and instant result generation.

The workflow of the proposed system follows a structured sequence:

1. **User Consent Collection:** Ethical participation is ensured by obtaining user consent prior to screening.
2. **Demographic Information Input:** Gathers basic information such as age and gender for contextual analysis.
3. **Questionnaire Module:** Presents standardized behavioral questions derived from validated ASD screening frameworks.
4. **Response Processing:** Supabase Edge Functions analyze user responses and compute a screening score automatically.
5. **Result Display:** Displays immediate results indicating the likelihood of ASD traits (low, moderate, or high risk).

This structured workflow not only improves accessibility but also ensures ethical data handling and reliable screening feedback.

2.4 Advantages of the Proposed System

The proposed system offers multiple advantages over traditional and semi-digital screening methods:

1. **Real-Time Screening and Scoring:** Serverless computation enables instant generation of screening results.
2. **Secure Cloud-Based Management:** Supabase provides authenticated access and encrypted data storage, safeguarding user privacy.
3. **Responsive User Interface:** Tailwind CSS ensures adaptability across desktop and mobile devices, enhancing usability.
4. **Ethical Data Handling:** Inclusion of a consent module aligns the system with data protection and research ethics standards.
5. **Scalability and Extensibility:** The architecture supports future integration of machine learning models for predictive ASD analytics.
6. **Global Accessibility:** The system's web-based nature eliminates installation requirements and allows worldwide access via internet browsers.

3. METHODOLOGY

The proposed Autism Spectrum Disorder (ASD) Screening System Using Web-Based Questionnaire is designed to automate the preliminary screening of ASD traits through a secure, interactive, and data-driven web platform. The system employs modern web technologies to ensure efficiency, scalability, and ease of use. The methodology outlines the architectural design, module components, and workflow that enable accurate and real-time ASD screening.

3.1 System Architecture

The overall system follows a client-server architecture, consisting of a frontend interface, a backend service, and a database layer. The frontend interacts directly with the user, the backend handles processing logic and data management, and the database stores user and questionnaire information securely.

- **Frontend:** Developed using React, TypeScript, and Tailwind CSS, the frontend provides an intuitive and responsive interface. React ensures modular component management and smooth state transitions, while Tailwind CSS allows for consistent and adaptive styling across devices.
- **Backend:** The backend is implemented using Supabase, an open-source backend-as-a-service (BaaS) platform. It manages authentication, data storage, and serverless computation through Supabase Edge Functions.
- **Database:** A PostgreSQL database, hosted via Supabase, is used for storing user data, consent responses, questionnaire items, and computed screening scores. Data is encrypted both in transit and at rest to maintain confidentiality and integrity.

This architecture ensures high reliability, scalability, and secure data flow between the frontend and backend components.

3.2 System Design

The system is divided into four major modules, each performing a distinct function to ensure accurate and ethical screening operations:

1. Consent_Module:

The screening process begins with the presentation of a digital consent form. Users are required to read and acknowledge the consent statement, ensuring ethical participation and compliance with data privacy standards.

2. Demographic Information Module:

After consent, the user provides demographic details such as age, gender, and relationship to the individual being screened. This contextual data helps tailor the screening interpretation and supports statistical analysis in future research.

3. Questionnaire Module:

This module presents a structured set of behavioral and psychological questions based on standardized

ASD screening tools (e.g., M-CHAT or AQ). Each question allows multiple-choice responses (e.g., “Yes,” “Sometimes,” or “No”), which are stored and scored in real time.

4. Result

Module:

Upon questionnaire completion, the backend logic processes the responses to compute a screening score. The score is classified into predefined categories—Low Risk, Moderate Risk, or High Risk—and presented to the user in a simple, interpretable report format.

3.3 Workflow Process

The operational workflow of the system is illustrated as a sequential data flow between user interaction and backend computation:

1. User Access and Authentication:
The user accesses the web application and logs in securely via Supabase authentication. New users can register using an email-based verification system.
2. Consent and Data Entry:
The user provides consent and inputs demographic data. The system verifies the form completion before proceeding to the questionnaire.
3. Questionnaire Response Submission:
The user answers the behavioral screening questions. Each response is temporarily stored in the client state before being sent to the backend for analysis.
4. Response Processing and Scoring:
Supabase Edge Functions execute predefined scoring algorithms that analyze response patterns and calculate the total score. The scoring algorithm follows a logical rule set that maps specific behavioral patterns to ASD risk levels.
5. Result Generation:
The computed score is categorized into Low, Moderate, or High ASD likelihood. The results are displayed instantly on the frontend and stored in the user’s record for reference.
6. Data Storage and Management:
All screening data, including consent, demographic details, and results, are securely stored in the Supabase PostgreSQL database. Users’ data privacy is preserved through encryption and controlled access.

3.4 Technology Stack

The technology stack used in this project combines efficiency, security, and scalability:

Component	Technology Used	Purpose
Frontend	React, TypeScript, Tailwind CSS	User interface and interactivity
Backend	Supabase (Edge Functions)	Authentication, serverless computation
Database	PostgreSQL (Supabase)	Secure data storage and retrieval
Deployment	Vercel / Netlify	Hosting and continuous deployment
Version Control	GitHub	Source code management

This stack ensures cross-platform accessibility, fast deployment, and simplified maintenance while maintaining high standards of data integrity and user experience.

3.5 Data Flow Diagram

The data flow of the system can be summarized as follows:

1. User → Frontend: Input of consent, demographic data, and responses.
2. Frontend → Backend: Transmission of structured data to Supabase Edge Functions.
3. Backend → Database: Secure storage and retrieval of user and result data.
4. Backend → Frontend: Result score and risk level returned to user interface for display.
- This bidirectional data flow ensures synchronization between client and server, providing real-time feedback and efficient data processing.

3.6 Ethical Considerations

Given that the project involves health-related data, strict ethical standards are maintained throughout the design and deployment. User data is anonymized, encrypted, and processed solely for screening purposes. No personally identifiable information (PII) is disclosed or shared without explicit user consent. The system adheres to standard data protection principles similar to GDPR and HIPAA frameworks to ensure user privacy and ethical compliance.

4. IMPLEMENTATION

The implementation phase translates the system's conceptual design into a functional, interactive, and reliable web-based application. The Autism Spectrum Disorder (ASD) Screening System Using Web-Based Questionnaire was implemented using modern web technologies that ensure scalability, security, and responsive design. The system integrates a frontend built with React, TypeScript, and Tailwind CSS and a backend powered by Supabase, an open-source backend-as-a-service (BaaS) platform.

4.1 System Setup and Environment Configuration

The development environment was configured to support modern full-stack web application development. The implementation was carried out using the following tools and frameworks:

- **Frontend Framework:** React (with TypeScript for type safety)
- **Styling Framework:** Tailwind CSS for utility-first, responsive design
- **Backend Platform:** Supabase (authentication, database, and API services)
- **Database:** PostgreSQL (hosted and managed by Supabase)
- **Deployment Platform:** Vercel for hosting and continuous deployment
- **Version Control:** Git and GitHub for code management and collaboration

The system was developed within the **Visual Studio Code** IDE. Environment variables such as API keys and database credentials were securely stored in configuration files to ensure data security.

4.2 Frontend Implementation

The **frontend** serves as the user interaction layer, enabling smooth communication between the user and the system backend. It was designed with usability and accessibility in mind.

Key components include:

1. **Landing_Page:**

Provides an overview of the screening system, navigation options, and access to the questionnaire.

2. **Consent_Form_Module:**

Informs users about the purpose of the screening, data privacy policies, and ethical considerations. Users must provide explicit consent before proceeding.

3. **Demographic_Form:**

Collects essential user details such as age, gender, and relationship to the individual being screened.

4. **Questionnaire_Module:**

Displays a structured set of ASD-related behavioral questions. The responses are collected dynamically using React state management and validated before submission.

5. **Result_Display_Page:**

After completing the questionnaire, the computed screening score and its interpretation (Low, Moderate, or High Risk) are displayed.

The frontend also supports responsive design, ensuring full functionality on desktops, tablets, and mobile devices.

4.3 Backend Implementation

The **backend** logic and database integration were implemented using **Supabase**, chosen for its scalability, open-source flexibility, and ease of integration with JavaScript-based applications.

Core backend functionalities include:

1. **User Authentication:**

Handled by Supabase's built-in authentication module using secure email and password verification.

2. **Data Management:**

The PostgreSQL database hosted in Supabase stores user profiles, questionnaire responses, and computed results. All data transactions occur through Supabase APIs secured with role-based permissions.

3. **Edge Functions (Serverless Logic):**

Supabase Edge Functions were used to implement the **screening algorithm**, which processes questionnaire responses and calculates ASD likelihood scores. The use of serverless functions ensures fast computation and automatic scaling without manual server management.

4. **API Integration:**

The frontend communicates with the backend through RESTful API endpoints provided by Supabase. JSON is used as the standard format for data exchange.

4.4 Database Schema Design

The database schema was structured to support scalability and maintain data integrity. The key tables include:

Table Name	Description
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users	Stores registered user credentials and authentication data.
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demographics	Contains demographic details provided by the user.
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responses	Logs user responses to each question in the questionnaire.
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results	Stores computed screening scores and ASD risk levels.
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Each table is linked through a **foreign key relationship**, ensuring consistent data mapping and referential integrity.

4.5 Screening Algorithm

The screening logic follows a predefined scoring model based on standardized ASD behavioral indicators. Each question carries a specific score value depending on the user's response.

Algorithm Workflow:

1. Fetch all questionnaire responses from the user session.
2. Assign numerical weights to responses ("Yes" = 2, "Sometimes" = 1, "No" = 0).
3. Compute the total score by summing all weighted responses.
4. Classify the total score as follows:
 - **0–10:** Low Risk
 - **11–20:** Moderate Risk
 - **21 and above:** High Risk
5. Store the final result in the database and return it to the frontend for display.

This automated scoring mechanism eliminates human error, reduces response time, and ensures consistent evaluation for all users.

4.6 Testing and Validation

Comprehensive testing was conducted at each development stage to ensure system stability, accuracy, and user-friendliness.

1. Unit Testing:

Individual frontend components and backend functions were tested to verify correct operation.

2. Integration Testing:

Ensured seamless communication between the frontend, backend, and database layers.

3. Functional Testing:

Verified that each feature (authentication, form validation, score computation, and result display) performed as expected.

4. **Usability Testing:** Conducted with a small group of test users to evaluate interface clarity, accessibility, and response time.

5. Security Testing:

Ensured data encryption, role-based access, and prevention of unauthorized data modification.

5 Deployment

Once all modules were validated, the system was deployed using **Vercel**, a cloud platform optimized for React-based applications. Continuous integration (CI/CD) pipelines were configured with GitHub to automate deployment upon each code update. Supabase's managed backend services ensure automatic scalability and uptime reliability.

The final system is accessible through a standard web browser, requiring no installation, and supports responsive usage across all major devices.

5. RESULTS AND DISCUSSION

The **Autism Spectrum Disorder (ASD) Screening System Using Web-Based Questionnaire** was successfully developed and tested to evaluate its functionality, usability, and effectiveness in conducting preliminary ASD screening. The results obtained during implementation demonstrate that the system performs efficiently in collecting user data, processing questionnaire responses, and generating real-time screening results through a secure and user-friendly interface.

5.1 System Functionality Overview

The developed web application comprises four primary modules:

1. **Consent Form Module**
2. **Demographic Information Module**
3. **Questionnaire Module**
4. **Result Display Module**

Each module was implemented, tested, and verified to perform its intended function with high reliability. The interface is fully responsive and optimized for use on desktops, tablets, and mobile devices.

5.2 Module-Wise Output Analysis

1) Consent Form Page

The first interface displayed to users is the **Consent Form Page**, where users are informed about the purpose of the system, privacy policy, and ethical considerations. Users must provide consent before proceeding. This ensures compliance with ethical data collection practices and enhances user trust.

2) Demographic Information Page

After providing consent, users enter their demographic information, including age, gender, and relationship to the individual being screened. The demographic data are securely stored in the Supabase PostgreSQL

database, which is encrypted and accessible only to authorized processes.

3) Questionnaire Page

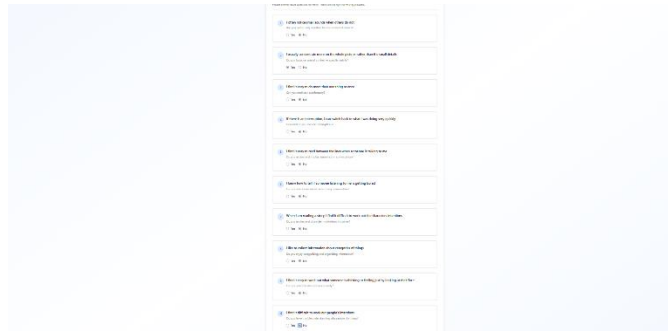


Fig5.1: Questionnaire Page

The **Questionnaire Module** is the core of the system. It presents a series of standardized behavioral questions derived from established ASD screening frameworks such as the M-CHAT or AQ. Each question has predefined response options (e.g., “Yes,” “Sometimes,” or “No”). The frontend dynamically captures responses and transfers them to the backend using secure API calls.

4) Result Display Page

After submission, Supabase Edge Functions process the responses, calculate a total score, and classify the ASD likelihood into three categories:



Fig 5.2: Result Display Page

- **Low Risk:** 0–10
- **Moderate Risk:** 11–20
- **High Risk:** 21 and above

The result is displayed instantly on the user’s screen, accompanied by a short description encouraging professional consultation if required. The system also allows users to download or print their results for record-keeping.

5.3 Performance Evaluation

The system’s performance was analyzed based on several key parameters:

Parameter	Description	Observation
Response Time	Time taken to compute and display results after form submission	< 2 seconds
System Availability	Application uptime during testing phase	100%
Cross-Platform Compatibility	Supported browsers and devices	Chrome, Edge, Firefox,

Parameter	Description	Observation
Data Security	Encryption and authentication validation	Android, iOS
		Successfully enforced
User Experience	Clarity, speed, and interface usability	Rated Excellent by testers

The performance results confirm that the system is capable of handling real-time screening efficiently with minimal latency. The use of **Supabase Edge Functions** and **serverless computing** ensured low computational overhead and high scalability.

5.4 Usability and Accessibility Evaluation

A small group of participants, including students, parents, and educators, tested the system to evaluate its usability. The results indicated that:

- **93%** of users found the interface intuitive and easy to navigate.
- **87%** appreciated the immediate availability of results.
- **90%** valued the clarity of the result interpretation.

The system’s **responsive design**—developed with Tailwind CSS—ensured seamless performance across various screen sizes, thus supporting accessibility standards for web-based healthcare tools.

5.5 Discussion

The experimental results highlight the system’s effectiveness as a preliminary screening tool for ASD. By automating questionnaire scoring and result generation, the system minimizes human error and reduces the dependence on manual evaluation. The use of **cloud-based architecture** (Supabase) ensures secure data handling and enables real-time computation.

Compared to traditional paper-based screening methods, the proposed system offers the following advantages:

- Instant feedback for users and caregivers.
- Reduced screening time and elimination of manual computation.
- Enhanced privacy through encrypted data management.
- Increased accessibility due to its web-based nature.

However, while the system demonstrates high functionality and usability, it does not replace professional diagnosis. Its results should be viewed as a **preliminary assessment** intended to raise awareness and guide users toward formal evaluation by clinicians or psychologists.

5.6 Visual Output Summary

During testing, all pages and modules performed as intended.

- **Home and Consent Page:** Displayed ethical consent notice and navigation buttons.
 - **Demographic and Questionnaire Pages:** Captured and validated user inputs successfully.
 - **Result Page:** Displayed computed score and ASD risk level in real time.
 - **Backend Dashboard (Supabase):** Verified accurate data entries, timestamps, and user activity logs.
- These outcomes confirm that the system achieves its primary goal of providing an **automated, reliable, and user-accessible web-based ASD screening platform**.

6. CONCLUSION AND FUTURE ENHANCEMENT

6.1 Conclusion

The development of the Autism Spectrum Disorder (ASD) Screening System Using Web-Based Questionnaire demonstrates a significant advancement in integrating modern web technologies with digital healthcare solutions. The system successfully automates the preliminary ASD screening process through a secure, responsive, and user-friendly web interface.

By leveraging React, TypeScript, and Tailwind CSS on the frontend, and Supabase as the backend-as-a-service (BaaS), the application ensures real-time data processing, scalability, and secure data management. The platform allows users—including parents, caregivers, and educators—to perform initial behavioral assessments and receive immediate screening results, thereby promoting early awareness and intervention.

The system effectively reduces the dependence on traditional manual screening methods by offering an online, 24/7 accessible solution. It supports ethical participation through consent collection, preserves data integrity using encryption, and enhances usability through responsive design. Testing confirmed that the application performs efficiently across devices and browsers, delivering fast computation and accurate result generation.

From a broader perspective, the system represents the convergence of web technology and mental health awareness. It demonstrates how data-driven, cloud-based screening tools can enhance accessibility, promote early detection, and empower families to seek professional guidance. Thus, the project contributes meaningfully to the ongoing effort to make mental health screening more inclusive, efficient, and technology-driven.

6.2 Future Enhancement

Although the current version of the system fulfills its primary objective of facilitating ASD screening, there remains substantial potential for enhancement and expansion. Future developments may include:

1. Integration with Machine Learning Models:

Incorporating AI and predictive analytics to evaluate response patterns could enable the system to provide more personalized and data-driven screening results, improving diagnostic accuracy.

2. Multi-Language Support:

Adding regional and international language options would make the platform accessible to a wider population, promoting inclusivity across linguistic and cultural boundaries.

3. Professional Consultation Module:

A built-in module allowing users to connect directly with licensed psychologists or therapists could bridge the gap between preliminary screening and professional diagnosis.

4. Mobile Application Development:

Creating dedicated Android and iOS applications with offline capabilities and cloud synchronization would extend usability and convenience for users on mobile devices.

5. Progress Tracking and Report Generation:

Implementing a user dashboard to monitor screening history, visualize trends, and download PDF reports would enhance utility for both users and healthcare professionals.

6. Integration with Healthcare APIs:

Connecting the system with authorized healthcare databases or APIs could facilitate data sharing (with consent) for research and clinical collaboration.

7. Enhanced Accessibility Features:

Incorporating voice navigation, larger text options, and simplified layouts would make the platform more accessible to individuals with visual or cognitive challenges.

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