

A I A U T O M A T E D

AI ASSISTIVE TECHNOLOGY



RAKHUL PRAKASH SB - 220701216



SARVESHWARAN K - 220701254



PROBLEM STATEMENT

Accessible Communication for ALS Patients

- **ALS progressively impacts motor neurons, leading to loss of muscle control and speech**
- **Current solutions are often expensive and complex**
- **Need for an affordable, user-friendly communication solution**

EXISTING SOLUTIONS

High-End Eye-Tracking Systems:

- Tobii Dynavox I-Series: \$7,000 - \$17,000
- EyeTech TM5 mini: \$5,995

Brain-Computer Interfaces (BCIs):

- NeuroNode 3: \$8,900

Limitations:

- **High cost limits accessibility (average \$10,000+)**
- **Complex calibration and maintenance**
- **Limited portability and battery life (often 8-12 hours)**





OUR SOLUTION

01

Iris Tracking System
Utilizes smartphone/tablet front-facing camera (30-60 fps)

02

Gaze-Based User Interface
Customizable grid-based interface with dynamic sizing

03

Adaptive Text-to-Speech Output
Integrates with device's native TTS engine for low-latency output



OUR NOVELTY

01

- Machine learning for precise iris tracking [LSTM]
- Natural Language Processing for predictive text

02

- Combines accessibility with advanced AI capabilities
- Adapts to individual user needs over time





MARKET ANALYSIS

Market Statistics:

- Global assistive technology market size: \$24.7 billion in 2021, expected to reach \$41.1 billion by 2030 (CAGR of 5.8%)
- ALS prevalence: 5.2 per 100,000 population globally



SOURCES

ALS Association: <https://www.als.org/navigating-als/resources/fyi-assistive-technology-people-als>

Market Research Future:

<https://www.marketresearchfuture.com/reports/assistive-technology-market-10711>

National Institute of Neurological Disorders and Stroke:

<https://www.ninds.nih.gov/health-information/disorders/amyotrophic-lateral-sclerosis-als>

THANK YOU