**O’VISTA White Paper**

**Revolutionizing Cognitive Diagnostics Through AI-Powered Eye-Tracking**

**Executive Summary**

O’VISTA is at the forefront of **cognitive diagnostics**, integrating **AI-powered eye-tracking technology** to detect **early-stage Alzheimer’s, stroke-related cognitive impairments, and learning difficulties** such as dyslexia and autism. Unlike traditional methods such as **MMSE and MoCA**, which rely on subjective assessments, **O’VISTA provides real-time, objective, and data-driven insights** through **fixation duration, saccadic movements, regression analysis, and gaze disparity tracking**.

To support **clinicians, researchers, and institutions**, O’VISTA introduces a **three-tiered system** for cognitive assessment:
1️. **Laboratory Platform** – A fully customizable test creation tool where experts can design assessments using **MMSE, MoCA, images, music, and self-made tests**.
2️. **AI-Powered Data Processing & Analytics** – Advanced eye-tracking metrics and AI interpret cognitive function in real-time.
3️. **Automated Results & Reporting System** – Patients and researchers receive **clear, AI-generated insights** that classify **cognitive impairment levels** and suggest therapy interventions.

Additionally, O’VISTA offers an **expert monitoring center**, ensuring **continuous support** for patients, clinicians, and researchers. Through blockchain integration, the **OVI token** enables **secure data access, research incentives, and therapy funding**—though it remains an **optional** feature, ensuring O’VISTA’s core functionality remains **accessible to all users** without reliance on crypto.

Our **innovation center in Qatar** serves as a global **R&D hub**, supporting O’VISTA’s **clinical partnerships, AI research, and franchise expansion.**

**1. O’VISTA’s Three-Tiered System for Cognitive Analysis**

O’VISTA operates through a **structured, modular framework** that ensures precision in **cognitive assessments** while maintaining **flexibility for customization**.

**1️. Laboratory Platform – Custom Cognitive Test Design**

The **Laboratory Platform** is a dedicated **test customization environment** where **clinicians, neuroscientists, and researchers** can design **standardized or fully customized cognitive assessments**.

📌 **Available Test Types:** ✅ **Standardized Assessments** – MMSE, MoCA, ACE-III
✅ **Visual-Based Tests** – Upload **images, videos, and dynamic stimuli** for recognition and memory assessments.
✅ **Auditory Processing Tests** – Assess response time and recall using **music, spoken words, or frequency-based sound tests**.
✅ **Self-Designed Cognitive Tasks** – Experts create custom **questionnaires, interactive games, and experimental tests**.
✅ **AOI (Area of Interest) Tracking** – Define fixation zones on images, enabling **precise gaze-tracking analysis**.

💡 **Example Use Case:**

* A **university neuroscience lab** uploads **historical images** to test **long-term memory retention** in Alzheimer’s patients.
* O’VISTA **tracks fixation time and response accuracy**, providing **quantitative memory insights.**

**2️. AI-Driven Platform – Data Analysis & Interpretation**

Once a test is completed, **O’VISTA’s AI-driven analytics engine** processes **all cognitive and eye-tracking metrics** in real time.

📌 **Key Eye-Tracking Metrics & Their Meaning:**

|  |  |  |
| --- | --- | --- |
| Metric | What It Measures | What It Reveals |
| Fixation Duration | Time spent focusing on a single point | Delayed responses indicate **cognitive slowing** |
| Saccadic Length | Distance between two fixations | Shorter distances may signal **processing delays** |
| Gaze Disparity | Difference between left & right eye tracking | Can indicate **neurodegeneration** in the visual cortex |
| Regression Count | Backward eye movements while reading | High counts suggest **difficulty in information retention** |

📌 **AI-Powered Cognitive Analysis:**
✔ **Automated Severity Classification** – Categorizes results into **Mild, Moderate, or Severe Cognitive Impairment**.
✔ **Heatmap Visualization** – Identifies **high-focus vs. avoidance areas** in memory recall tests.
✔ **Longitudinal Tracking** – Compares patient results **against previous sessions** for **progress tracking**.

💡 **Example Use Case:**

* A **neurologist at a hospital** uses **O’VISTA’s AI-driven saccadic tracking** to detect **early Alzheimer’s onset before memory loss symptoms appear.**

**3️. Results & Reporting System – Clear, Actionable Patient Insights**

The final step in O’VISTA’s framework ensures that **patients, clinicians, and researchers receive easy-to-understand, AI-powered reports**.

📌 **How the Reporting System Works:** 1️⃣ **AI Interprets Cognitive Scores & Eye-Tracking Data.**
2️. **Severity Classification System:** Mild, Moderate, or Severe Alzheimer’s.
3️. **Patient-Friendly Report Generation:**

* **Graphical Insights** – A visual summary of patient’s **eye-tracking behavior**.
* **Clinician Notes Section** – Allows specialists to **provide personalized recommendations**.
* **Therapy Suggestions** – AI-driven advice on **cognitive exercises or interventions**.

📌 **Sample AI-Generated Patient Report:**
✅ **Fixation Duration: 680ms → Delayed Cognitive Processing**
✅ **Regression Count: 42 → High Memory Recall Effort**
✅ **Final Assessment: Moderate Cognitive Impairment**

💡 **Example Use Case:**

* A **caregiver receives a user-friendly report** that explains **how their loved one’s cognitive health is changing over time.**

**4. Real-Time Monitoring & Support Center**

O’VISTA’s **Monitoring Center** ensures **continuous support** for test users, providing **real-time assistance** when needed.

📌 **How the Monitoring Center Works:** ✔ **Live Data Sync** – All test results are securely uploaded to a **HIPAA/GDPR-compliant cloud database**.
✔ **Expert Review** – Specialists **remotely analyze flagged assessments** for quality assurance.
✔ **Virtual Consultations** – Patients and researchers can receive **real-time AI-based therapy recommendations**.

💡 **Example Use Case:**

* A patient taking a **remote test at home** receives **instant AI-driven feedback and therapy recommendations** via the monitoring center.

**5. The Role of OVI Token – Optional Blockchain Integration**

While **O’VISTA operates fully without blockchain**, the **OVI Token** introduces an optional, blockchain-powered mechanism for **research funding, data access, and therapy incentives**.

📌 **How OVI Adds Value:**

|  |  |  |
| --- | --- | --- |
| Use Case | How OVI Works | Can Use Without OVI? |
| Research Data Access | Researchers stake OVI to access AI insights. | ✅ Yes, via licensing. |
| User Incentives | Patients earn OVI for participating in studies. | ✅ Yes, optional rewards. |
| Remote Therapy Access | OVI tokens unlock AI-based therapy sessions. | ✅ Yes, with fiat payments. |

📌 **Investor Reassurance:**

* **O’VISTA functions fully without OVI.**
* **Healthcare institutions can use fiat for payments.**
* **OVI enhances engagement but does not affect O’VISTA’s main business model.**

**Final Summary**

✅ **1. Laboratory Platform** – Experts **choose & design cognitive tests**.
✅ **2. AI-Driven Platform** – Analyzes **fixation, regression, and gaze metrics**.
✅ **3. Results System** – Generates **easy-to-interpret AI-powered reports**.
✅ **4. Monitoring Center** – Provides **real-time expert support**.

O’VISTA is the **future of AI-powered cognitive diagnostics**, ensuring **accurate, scalable, and data-driven healthcare solutions**.