Building a **typing test website** that not only measures speed and accuracy, but also **detects problems like mistimed keystrokes, misfires, finger inconsistency, etc.** is a brilliant idea — and very doable if you're serious about it.

Let’s break this down **step by step**, like a proper roadmap:

**🎯 Goal:**

**A typing platform that doesn't just give WPM but actually diagnoses problems**

Examples: mistyped letters, out-of-sequence keypresses, weak fingers, mistiming between strokes, etc.

**🧩 1. Tech Stack Recommendation**

| **Area** | **Tool/Tech** |
| --- | --- |
| **Frontend** | HTML + CSS + JavaScript (React if advanced) |
| **Backend** | Node.js with Express (or Python Flask/Django if preferred) |
| **Database** | MongoDB or PostgreSQL (to store user test data, patterns) |
| **Typing Input Logger** | JavaScript event.timeStamp, KeyboardEvent |
| **Hosting** | Vercel (Frontend) + Render/Heroku (Backend) |

You can even start **100% frontend-only** for now.

**🧠 2. Key Features to Build (Phase-by-Phase)**

**✅ Phase 1: Basic Typing Test**

* Show user a random quote
* Capture real-time typing input
* Compare against target text
* Show WPM, Accuracy, Time

**✅ Phase 2: Advanced Logging**

* Track **each key’s timestamp** (keydown and keyup)
* Store:
  + Key name
  + Time pressed
  + Time between keys (inter-key delay)
* Record errors (wrong letter typed, deleted, or inserted)

Now you can **calculate timing errors**, like:

if (expected === 'u' && typed === 'n') {

error = 'premature key press';

}

**✅ Phase 3: Error Pattern Detection**

Build an algorithm to analyze:

* **Frequent mistyped keys** (e.g., always messes up O, P, U)
* **Out-of-sequence letters** (e.g., nad instead of and)
* **Hesitation/jerky typing** (huge time gaps between certain pairs)
* **Ghost keystrokes** (keys pressed that weren’t part of the word)

This is your **"Typing Intelligence Engine."**

**📊 3. Sample Metrics You Can Calculate**

| **Metric** | **What it Tells You** |
| --- | --- |
| **WPM** | Speed |
| **Accuracy %** | Control |
| **Backspaces per word** | Typing confidence |
| **Inter-key delay** | Rhythm & mistiming |
| **Most mistyped letter pairs** | Weak finger combos |
| **Random keys pressed** | Finger misfire / tension |
| **Error recovery time** | Mental recovery ability |

**🔧 4. How to Track Timing in JavaScript**

You can log keystroke timings like this:

document.addEventListener('keydown', (e) => {

const now = performance.now(); // High-res timestamp

console.log(`Key: ${e.key} | Time: ${now}`);

});

Store the sequence in an array and compute **inter-key delay**, **error sequences**, etc.

**💡 Bonus Ideas**

* **Heatmap of weak keys**
* **Live "mistiming" alert ("You pressed N too early before U")**
* **Training drills auto-generated from past errors**
* **Graph of performance trend over time**
* **Personal typing coach AI** using your logs (could be ChatGPT 👀)

**🔥 Final Advice**

This project could easily:

* **Stand out on GitHub**
* Be turned into a **SaaS product for learners**
* Be used for your own practice or even monetized as an app