Pronunce Me: Prototyping an Inclusive AI-Assisted Name Pronunciation System for Multicultural Interaction

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***Abstract*—This paper proposes an early-stage prototype for an inclusive AI-assisted name pronunciation system designed to support respectful multicultural interaction in public and professional spaces. The project explores how lightweight digital prototyping and interaction design may help reduce social discomfort, identity loss, and exclusion caused by repeated name mispronunciation. The proposed prototype combines a wearable conference badge system with AI-assisted pronunciation support accessible through QR or NFC interaction.**

I. Introduction / Background

"I'm sorry if I mispronounce your name" is a considerate example of an expression often used in international and academic settings to acknowledge uncertainty and invite correction [1, 2]. Yet when mispronunciation is repeated, it can accumulate into discomfort, misrecognition, and exclusion for people with non-Western names [3]. In our UK survey of 150 Chinese students, 78% reported mispronunciation, 70% felt uneasy correcting others, and 79% associated these experiences with embarrassment or disrespect.

Despite its prevalence, name mispronunciation is often treated as a trivial or unavoidable linguistic issue [3]. Chinese names are chosen for cultural, familial, and personal significance, and identical pronunciations can correspond to different characters with distinct meanings, making each name uniquely expressive [4]. However, in Western contexts pinyin often becomes the default representation of Chinese names, even though it lacks this semantic richness and offers limited differentiation between characters [5].

To address this issue, this project explores how lightweight AI-assisted interaction design may support more respectful and accessible name pronunciation practices in multicultural environments. The proposed system combines wearable conference badges with mobile-accessible pronunciation support, allowing users to hear name pronunciations, view simplified phonetic guidance, and engage more confidently in social interaction. Rather than expecting individuals to repeatedly correct others, the prototype aims to reduce communicative friction through accessible and low-barrier technological intervention.

Chinese name	Pinyin(with tone)	AI-assisted Pronunciation
牛京秦	jīng qín níu	gin chin Neo
庄印除	Yìn chú zhuāng	in chew john

Fig. 1. Example of AI-assisted Pronunciation (Anonymous name)

II. Related Work

Mispronunciation is not merely accidental, but a patterned social practice shaped by power, convenience, and institutional norms [3]. Public incidents such as the widely circulated U.S. university graduation ceremonies show that even when phonetic cue cards are used, institutional responses often prioritize efficiency over accountability, reinforcing mispronunciation as inevitable rather than preventable [6]. Empirical studies further show that when encountering unfamiliar names, most speakers adopt avoidance, simplification, or substitution strategies, with only a minority making sustained efforts to learn correct pronunciation [7]. These observations are consistent with work on linguistic bias showing that social attitudes and power relations are enacted through the how of speech as much as through propositional content, including hesitation and avoidance behaviors [8].

The consequences are well documented. Mispronunciation functions as a subtle mechanism of exclusion, shaping people's experiences of recognition and how their professional legitimacy is perceived [2]. These harms fall disproportionately on students of color, situating name mispronunciation within broader patterns of racial microaggressions that reproduce cultural hierarchies through seemingly minor, routine acts [3].

While some individuals adopt alternative names for pragmatic or protective reasons, scholars argue that widespread renaming among minority populations reflects conformity to dominant linguistic norms rather than genuine preference, raising concerns about voice erasure and

unequal communicative burden [7]. Comparable asymmetries appear in other writing systems: Japanese katakana and Korean romanisation adjust names to Western reading expectations, marking them as foreign-facing and recentring dominant language norms [9, 10].

III. IMAGINED OR EXISTING PROTOTYPE SKETCHES/DRAWINGS/PHOTOS

Fig. 2. Example of smart name tag by Bizzabo

A. Prototype overview and system design

The proposed prototype is an AI-assisted inclusive name pronunciation badge system designed for multicultural environments such as conferences, academic institutions, and public-facing events. The system combines a physical wearable name badge with a lightweight digital interface that enables others to access correct pronunciation and name-related information through QR code or NFC interaction.

The physical prototype consists of a standard conference-style name badge printed on durable card or sustainable material. The badge includes:

- Printed name and optional pronouns
- A QR code linking to a personalised pronunciation page
- (Future iteration) NFC tag embedded behind the badge surface

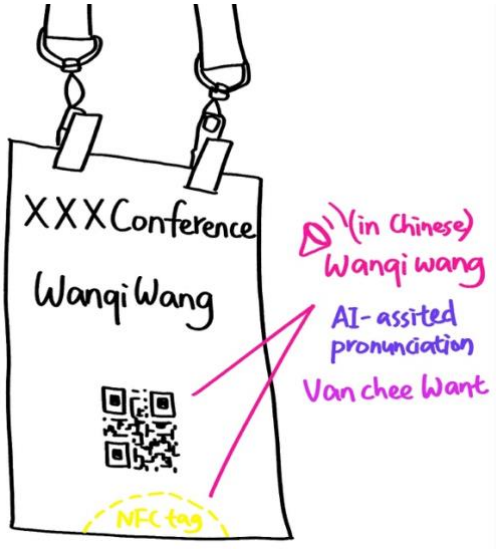

Fig. 3. Sketches of the name tag (Author's name)

The digital component is a simple web-based interface that is accessed when the QR code is scanned or NFC is tapped. This interface includes:

- AI-generated phonetic spelling of the name
- Audio pronunciation playback (text-to-speech system)
- Optional slow/clear pronunciation mode for learning purposes
- Optional short contextual note provided by the participant (e.g., cultural or linguistic background of the name)

The AI component is used in a lightweight manner. Rather than training a model, the system uses existing AI services (e.g., large language models and text-to-speech APIs) to generate phonetic breakdowns and spoken output. This ensures the prototype remains accessible and feasible at early-stage development.

The intended build process includes:

1. Designing the badge layout in a graphic design tool (e.g., Adobe Illustrator or Figma)
2. Generating QR codes linked to individual web pages
3. Creating a simple web interface (HTML/CSS/JavaScript or no-code prototype tool)
4. Integrating AI-generated pronunciation text and audio output
5. (Optional extension) Embedding NFC tags for tap-based interaction

The prototype is intentionally low-cost and scalable, prioritising interaction design and accessibility over hardware complexity.

B. Interaction flow and user experience

The user experience is designed to minimise friction in social interaction while encouraging respectful engagement with names.

Interaction flow:

1. A participant wears the badge in a shared social environment (e.g., conference).
2. Another user scans the QR code or taps the NFC tag using a smartphone.
3. A mobile interface opens automatically.
4. The system presents:
    - Correct pronunciation audio
    - Phonetic spelling
    - Optional guidance on pronunciation difficulty
5. The user listens and learns before interacting verbally with the badge wearer.

This interaction transforms the badge from a static identifier into a live communicative interface, supporting more inclusive social engagement.

Future iterations could include:

- Multi-language pronunciation support
- Voice input ("How do I pronounce this name?")
- Memory function for repeated interactions in long-term contexts such as universities or workplaces

IV. Responsible innovation

This project approaches responsible innovation through the lens of inclusive communication, accessibility, and minimal technological intervention.

A key ethical aim of the prototype is to reduce the social burden placed on individuals with non-dominant or multilingual names, where mispronunciation can contribute to exclusion, discomfort, or identity simplification. Rather than encouraging individuals to shorten or alter their names for ease of use, the system supports mutual learning and respectful pronunciation practices.

From a data ethics perspective, the system is designed to be lightweight and privacy-conscious. No personal data is required beyond the name itself, and any optional contextual information is user-controlled. Audio data, if generated, is not stored unless explicitly required, reducing unnecessary data retention.

From an environmental perspective, the prototype prioritises:

- Low-energy digital infrastructure
- Reusable physical badge materials
- Avoidance of unnecessary electronic waste in early stages
- Optional NFC integration only in later iterations, once value is validated

The system is intended as a social and communicative intervention rather than a high-consumption technological product, aligning with sustainable and responsible prototyping practices.

V. Author bio(s) / experiences

My background is in interdisciplinary art and PhD research, with a practice that spans visual art, performance, and research-led methodologies. My work explores AI-mediated interaction, accessibility, and the relationship between language, identity, and social inclusion, with a particular interest in how communication systems shape who gets to feel recognised and understood.

This project grew from personal experience navigating multilingual environments where my name was frequently mispronounced in academic and public settings. During my friend's graduation ceremony in 2022, I began thinking about an inclusive name pronunciation guide as a kind of language-conversion system, which later developed into my current research direction around AI-assisted interaction and inclusive communication.

I am currently developing skills in electronic prototyping, embedded systems, and interaction design, with the aim of bringing technical experimentation into dialogue with contemporary art practice. Through this work, I hope to create tools and interactions that encourage more empathetic and inclusive social experiences.

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VII. Refernces

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