Lip2Nav

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The Challenge

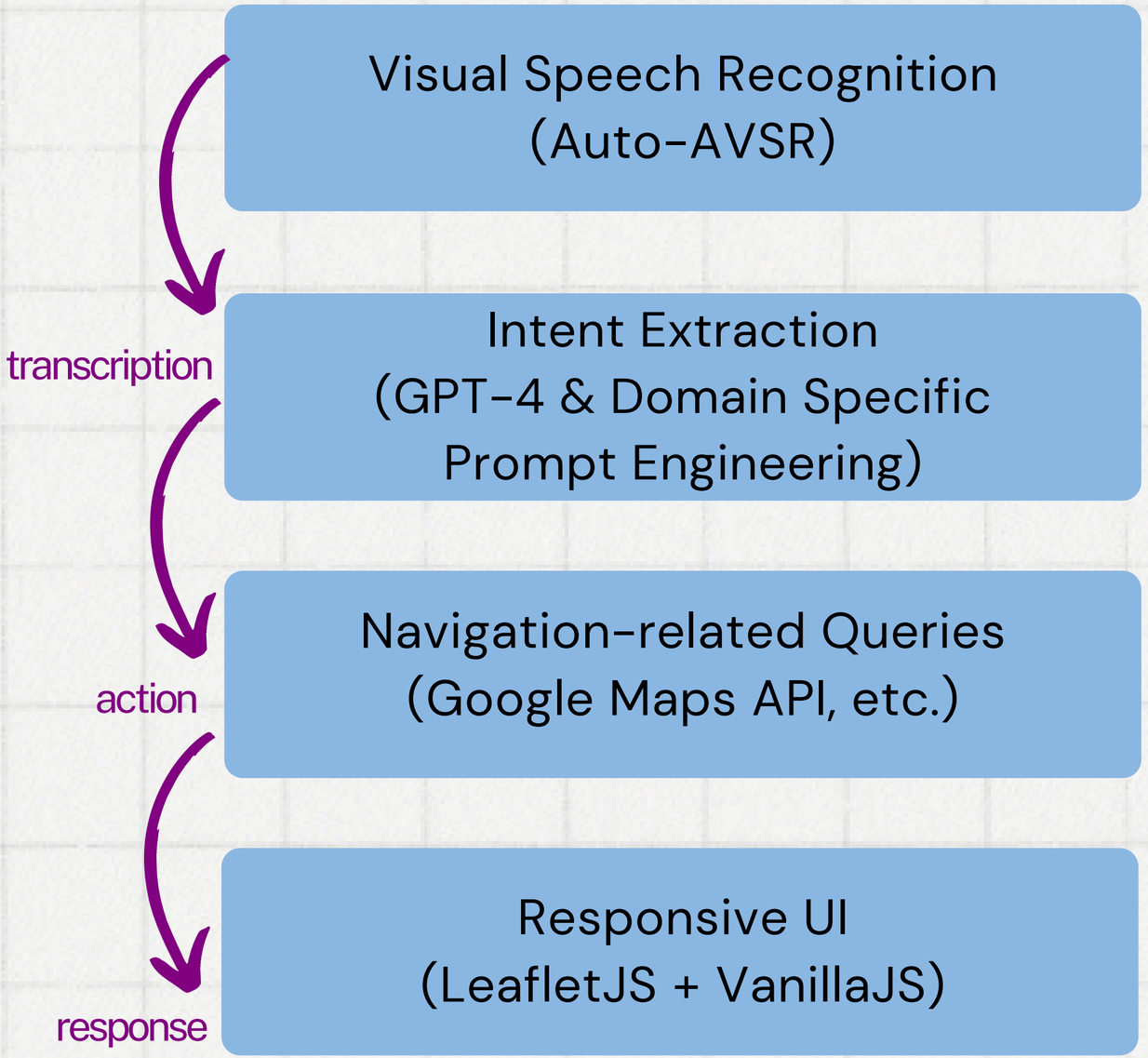
- Current hands-free navigation systems rely heavily on voice commands, which can be ineffective in noisy environments or for individuals with speech impairments.
- This significantly affects drivers who rely on, or would benefit from, voice navigation for safe and efficient travel, including those with speech difficulties who find voice-controlled systems less accessible.
- Roughly 10-11 million people in the UK are deaf or hard of hearing, many of which may struggle with traditional voice-activated navigation systems. [1]
- There are around 150,000 British Sign Language (BSL) users in the UK, which underscores the need for alternative communication methods in navigation systems for primarily sign language users and those with limited or no speech capabilities. [1]

[1] Jaab, B. (2021, September 22). International Week of the Deaf People 2021. Civil Service. https://civilservice.blog.gov.uk/2021/09/22/international-week-of-the-deaf-people-2021/

Solution: Lip2Nav – Lip Reading Navigation System

Introducing the first-ever navigation system that understands you by reading your lips.

Allows for near real-time hands free, lip-based navigation, catering for those with speech impairments.

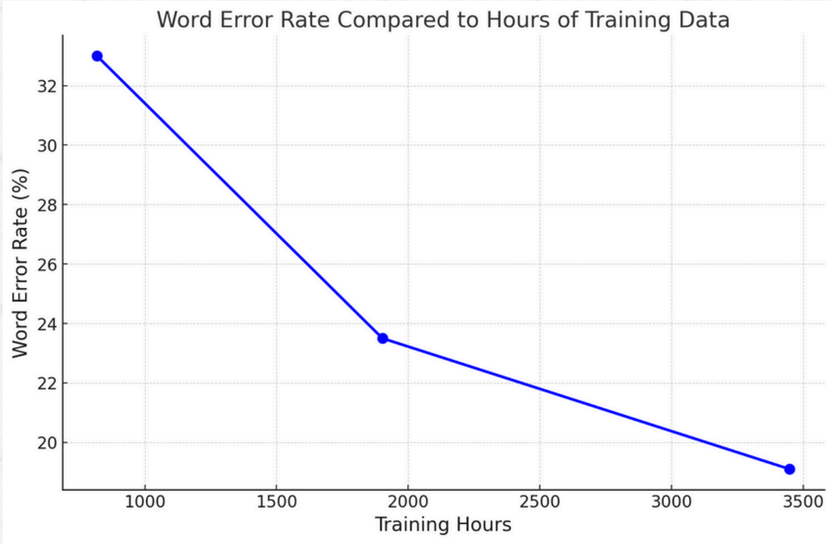


Demo

Lip2Nav

Final reflections and future steps

- Auto-AVSR Training Dataset Size (Further training will continue to improve results based on personal and published research). Need GPU compute!!!
- Possible malicious uses (Mass CCTV surveillance, etc.)
- GPT4-V Integration (Further hands free operation using simple head nod or shake gestures)
- Experiment with multilingual models (Some languages are harder, such as Mandarin Chinese, due to heavier use of tonality)



Thank you very much!