

Background

overview, motivation

The Spoken Web

Existing network of interconnected and interactive *voice sites* — speech-driven applications available via the public telecom network

Accessible using any type of phone by dialling unique telephone numbers; no extra software or hardware needed

Often aimed at less-literate users due to easy access and creation of content



Existing interaction options



- ✓ Intuitive, low cognitive load; no literacy required
- ✗ Pauses or cues needed to prompt interaction
- ✗ Not always appropriate: context; ambient noise

— or —



- ✓ Quick to enter; many input sequences
- ✗ Need to look at phone to see keypad
- ✗ Must remember button sequences and associations
- ✗ No support for continuous interaction

Design

requirements, our approach

New interactions should be:

- ✳ Recognisable in real-time
- ✳ Robust enough to cope with background noise
- ✳ Usable while simultaneously listening to content
- ✳ Detectable on the devices users already own
- ✳ Based upon common metaphors that users are already familiar with

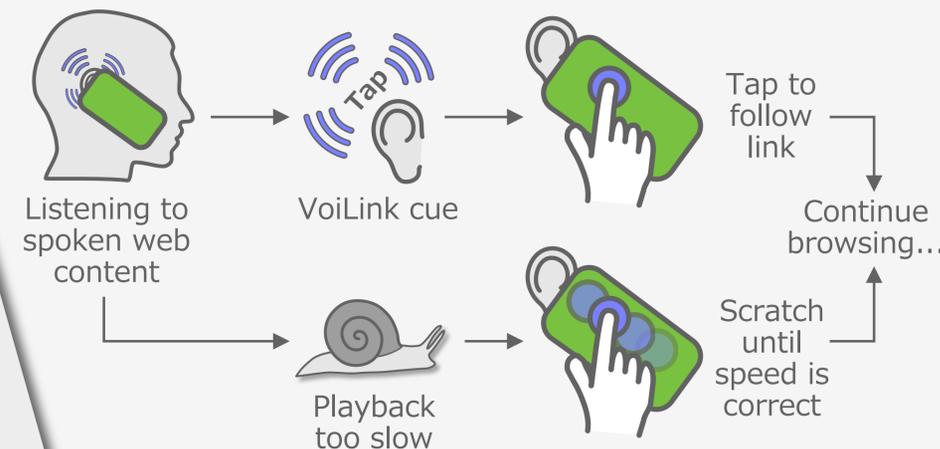
Back-of-device input

No need for new devices. Use the rear casing of users' existing phones as an input surface; sounds generated are captured over the voice connection



Example

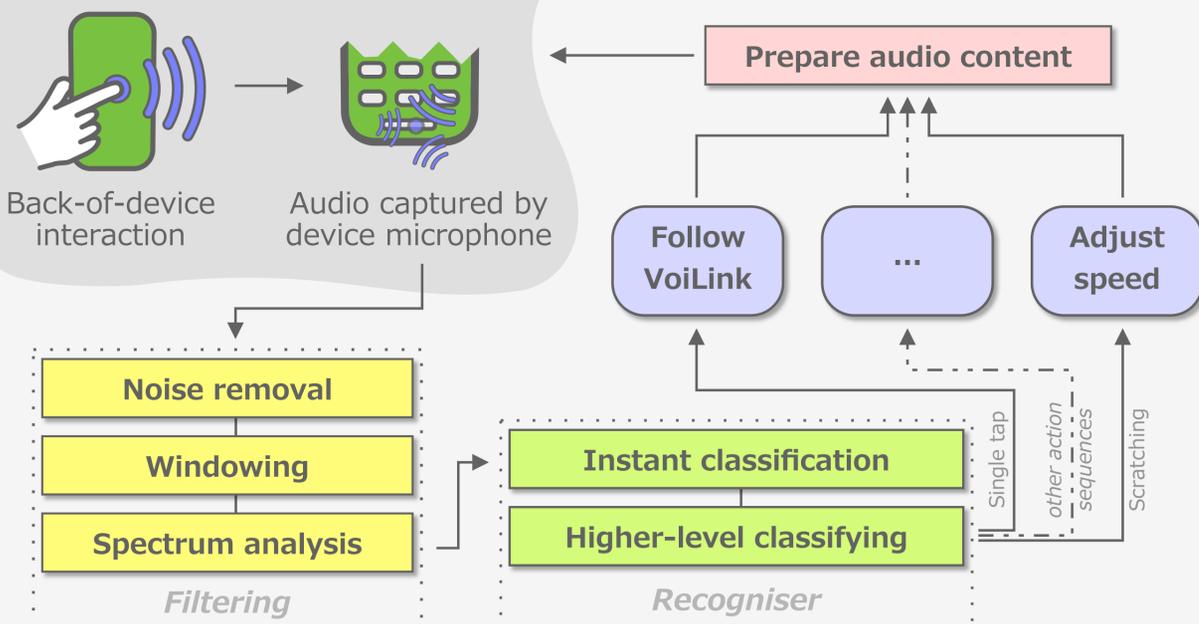
scenarios, benefits



Advantages

- ✳ Smoother interaction flow with voice sites – no need to look at the phone when entering commands
- ✳ Background cues help users understand what actions are possible at each stage
- ✳ Simple interactions; no need to upgrade existing devices

Implementation



Evaluation

Recogniser testing

Accurate real-time recognition is required in order to demonstrate the viability of the new methods. Measures include:

- ✳ Input recognition rates
- ✳ Response times
- ✳ Ease of use; error rates

Exploratory usage 1

A small proportion of the existing user pool is automatically diverted to the new system

Usage statistics are collected and used to form a picture of typical user interactions

In-situ evaluation

User studies will be undertaken to measure aspects of the new system's usability against existing voice site interaction methods

Two separate approaches in order to gather both browsing and goal-driven usage data

2 Task-based analysis

A comparison of the new interaction methods against the existing baseline techniques

Assessing task completion rates and times to measure viability and accuracy of the system