"BlindSight: Eyes-Free Access to Mobile Phones"

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BlindSignt is a prototype application that replaces the traditionally visual in-call menu of a mobile phone.

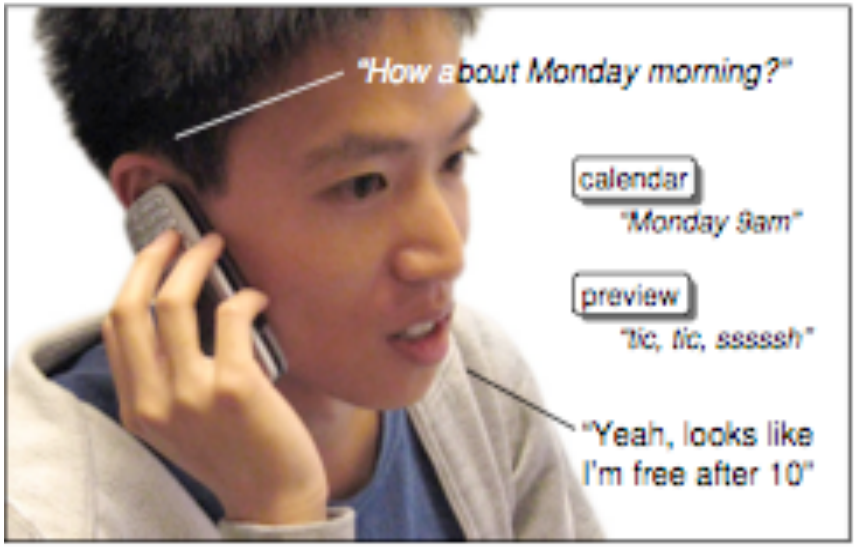
Background for BlindSight

Access calendars and contacts during conversation without interruption
Most common in-conversation actions:

- find & add-contact
- calendar access

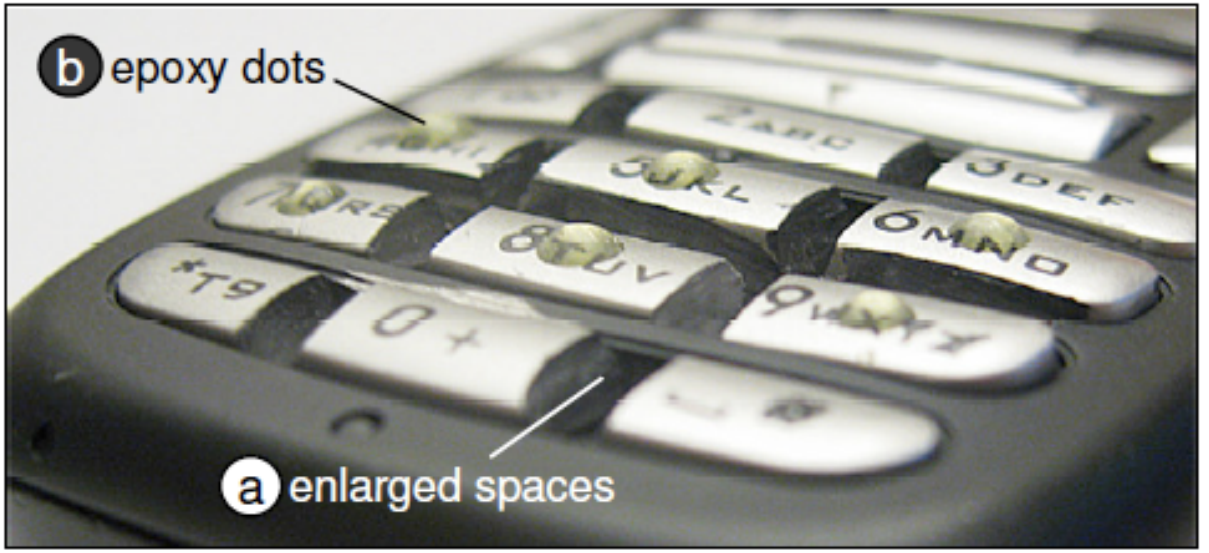
BlindSight:

- a prototype application to avoid interruption
- interaction by using the phone keypad, without looking at the screen.
- auditory response only heard by the user, not by the person on the other end of the line.



How it works?

In a conversation needing to find a contact:
by pressing the keys you get interference (tich, shh) feedback from the phone.



User testing:
Regular 3x4 keyborads were difficult, so they modified the keypad by enlarging the gaps between buttons and adding epoxy dots. This made it easier to hit the buttons.

John: Hi Ami, this is John, can we meet sometime next week?

Ami: Oh, hi John. Yeah, sounds great. When did you have in mind?
calendar *"calendar"*
calendar **(enters calendar)** *"Monday 9am"*
week + *"next Monday"*

John: How about Tuesday morning sometime?

Ami: day + *"next Tuesday"*
preview 3 hours *"tic, sssh, tic"* [tic="busy", sh="free"]

Ami realizes that noon is taken & looks for alternatives

3 hours+ *"noon"*
preview 3 hours *"tic, tic, sssssh"*

I'm busy in the morning, but I am free in the early afternoon.

John: Sorry, I have meetings all afternoon. How does Wednesday afternoon look?

Ami: day + *"Wednesday"*
preview day *"tic,ssh,tic, ,ssssssssh"*

Yeah, Wednesday sounds good. I am free after 1.

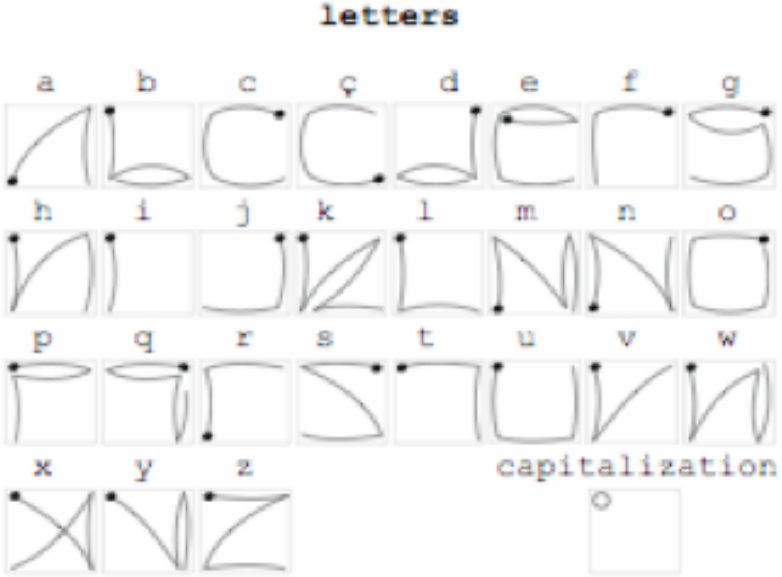
Related Technology

Auditory feedback
Interactive voice response systems.
Non-speak feedback is less distracting

Mobile input
Speak input interferes with the conversation, instead exploring some alternative input methods

- Text entry based on
  Unistroke or *Edgewrite*
- Back of the phone usage
- *LucidTouch*
- *Twiddler*

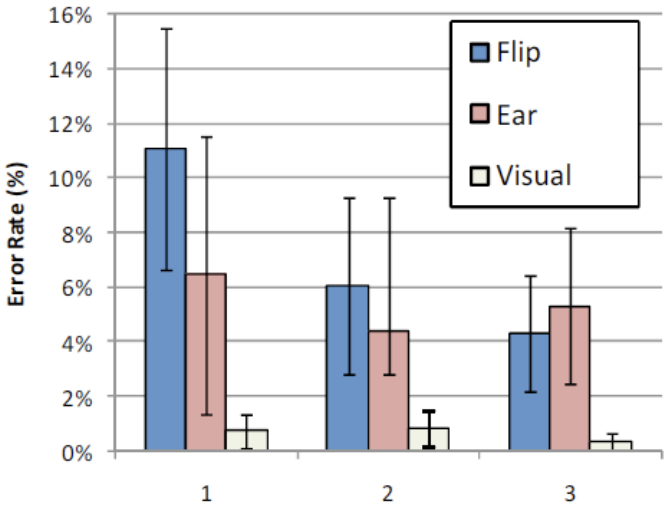
LucidTouch enhances back-of-device interaction by visualizing the user's hand position.



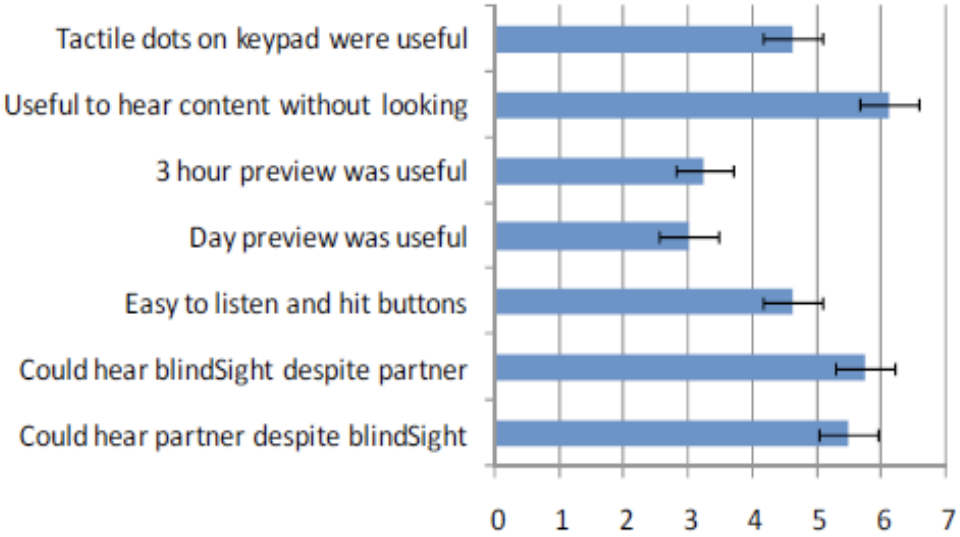
Methods

- Survey of mobile users
- Prototyping
- User study: Testing
  - flip - participants held the phone in the flipped position (operate the buttons with their index and middle finger)
  - ear - participants held their phone against their air (operate the buttons with their thumb of the same hand)
  - visual - participants held their phone in front of them (operated the buttons with the tumb of the same hand)
  - Smartphone vs. Blindsight
- Questionnaires

Results



Flip-phone had a high error rate beacuse the users did not have sufficient rehearsal time. But after 3 times of practice flip-phone was easier to navigate.



Relevance to our project: e-Me

- Contains relevant and interesting technology - not using the eyes
- Their future work wil explore the applicability of the findings to soulutions for visuallly imparied users.