Secure Interactions with Internet of Things

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https://kabru.eecs.umich.edu/wordpress/projects/mobile-systems/nsf-164613-cps-breakthrough-secure-interactions-with-internet-of-things/

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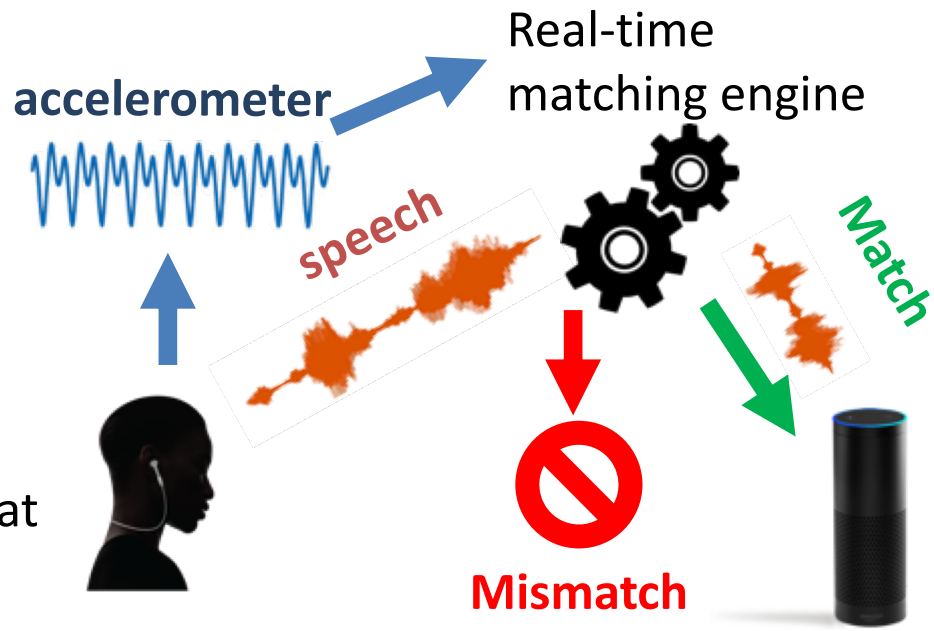
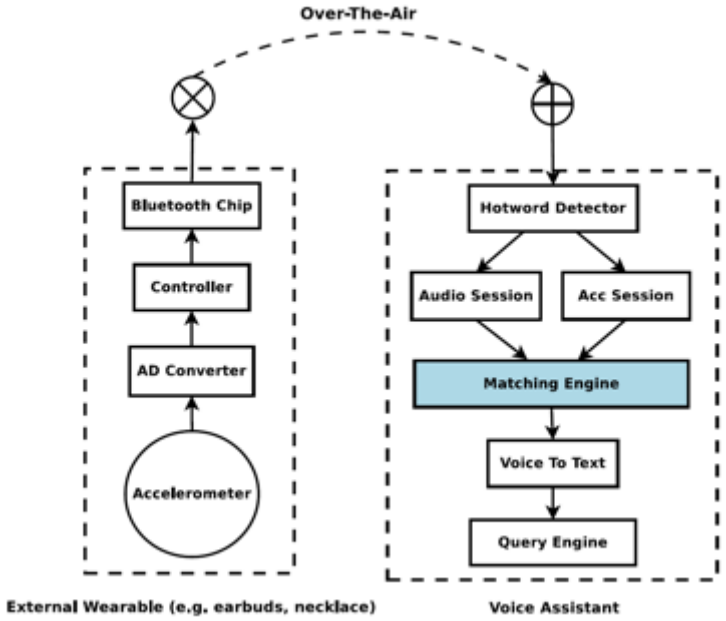
Award #: CNS- **1646130**

Description

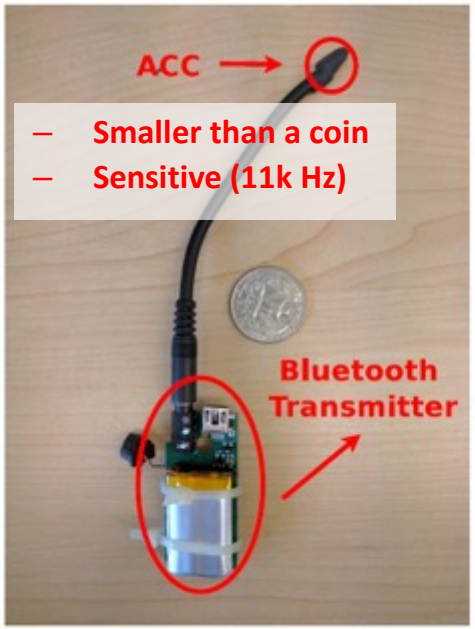
- Voice is an open channel
  - Unauthorized access to voice-activated devices
- Challenge: Need continuous authentication mechanism for voice that does not rely on signature



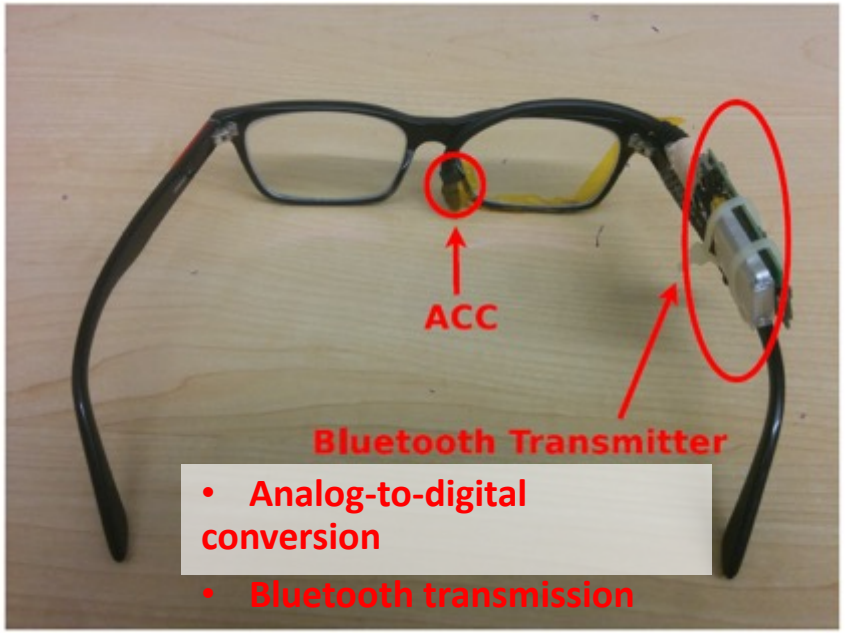
- Our solution: **VAuth**
  - Couple the voice channel with physical assurances from on-body vibrations
  - Secure, real-time and continuous voice authentication



Description: Prototype w/ COTS



(a) Wireless

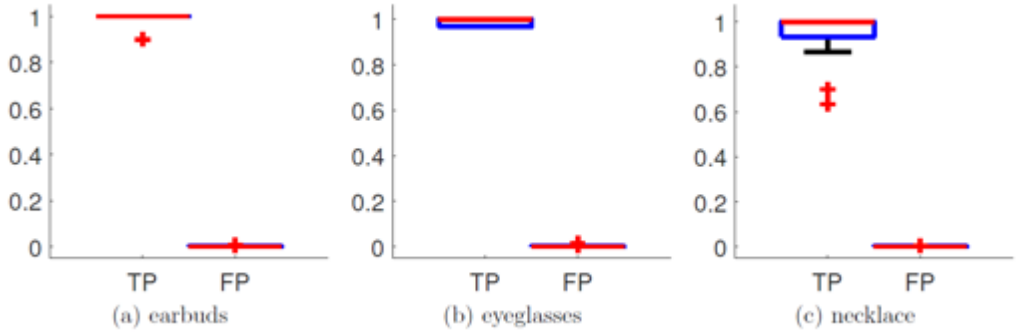


(b) Eyeglasses

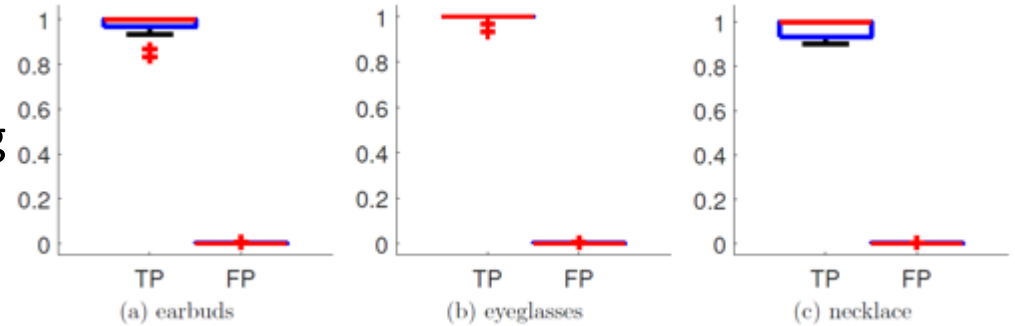
Findings

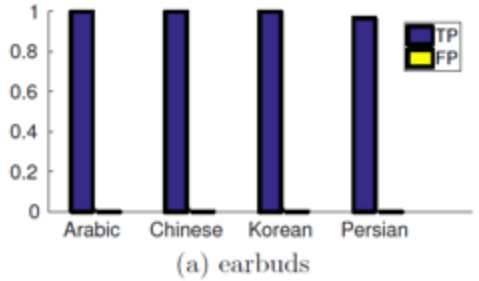
- Matching accuracy (True Positives & False Positives)
- *18* users speaking *30* commands in *5* languages
  - 3 positions (eyeglasses, earbuds, necklace)
  - 2 mobility patterns (still and jogging)

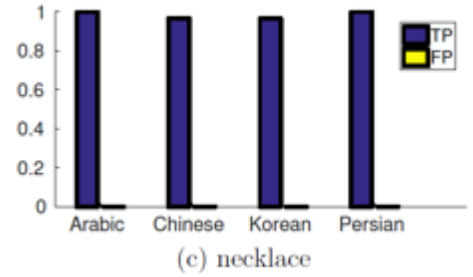
Still

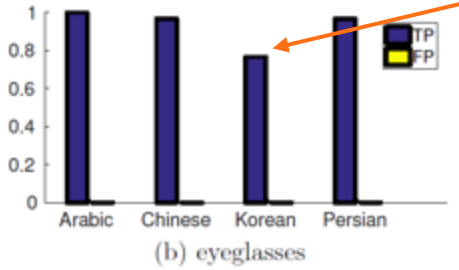


Jogging









Lack of nasal sound