Augmenting the BrainPort Vision Device for The Visually Impaired With Face Recognition Capabilities.

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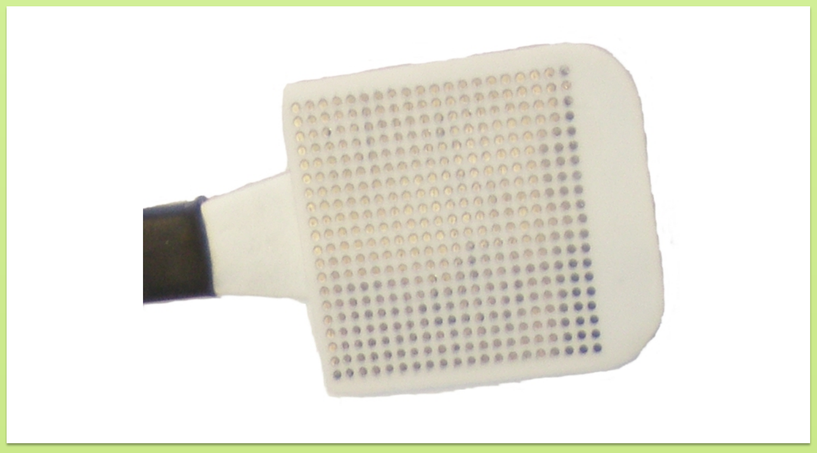
The BrainPort is a non-surgical assistive visual device that captures visual information and translates it to a Tongue Display Unit.

The amount of visual information captured in a single frame of video can overwhelm a person using the Tongue Display Unit. We propose a technique for aiding the visually impaired recognize faces by enhancing the distinct features of the face.

The BrainPort Device

A device is comprised of 3 main parts:
1) A video camera mounted on a pair of sunglasses.
2) The tongue display unit.
3) The controller.

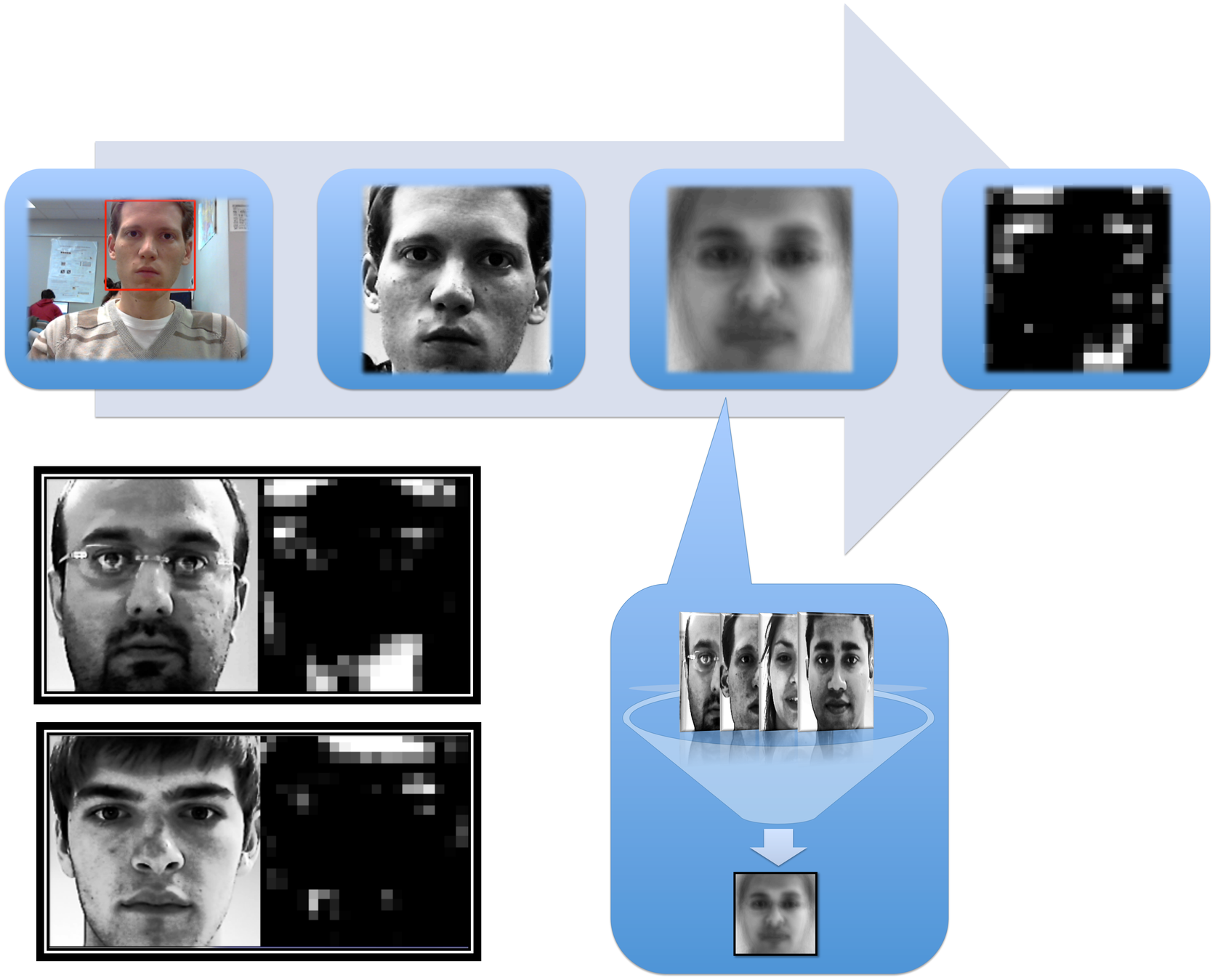
Tongue Display Unit



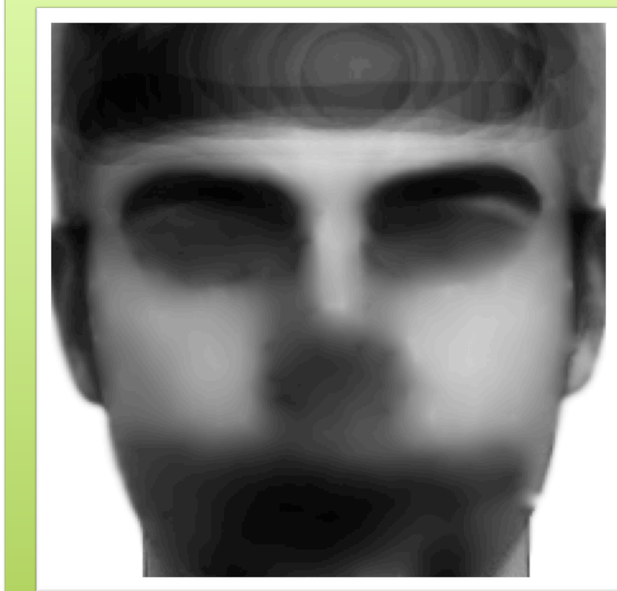
The Tongue Display Unit which is inserted into the mouth

A 20 by 20 matrix of metal electrodes.
“Champagne bubbles” feeling (well, kind of)

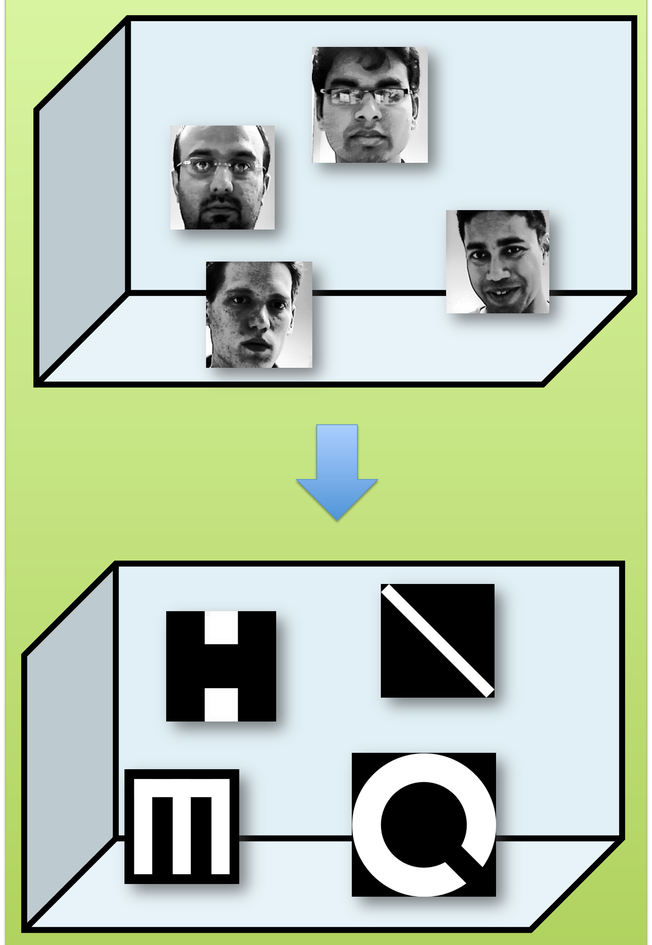
Recognizing Faces



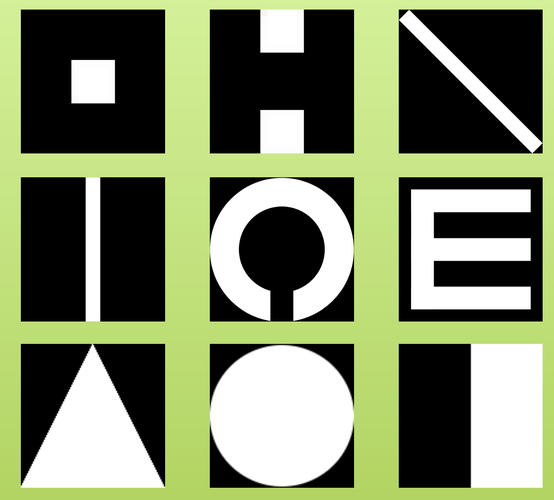
Importance map



Another approach: Projection into Symbol Space



Finding The Most Discriminative Symbols



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