

Lookine

Non-Verbal Social Assistance and Learning System for the Blind

OVERVIEW

Lookine attends to blind people's inability to receive non-verbal information when socializing face-to-face. With visual recognition technology, it helps blind people receive non-verbal cues in social interactions. Apart from learning non-verbal social information, this assistive technology also helps blind people learn social skills and gain social-emotional comfort.

MY ROLE

Literature Research
User Study
Experiment Design
Data Analysis

DATE

Mar 2021 - Sep 2021



Demo: https://drive.google.com/file/d/1ErizqqK0vjME8CiQPJQ_enqu3BF4S6RI/view?usp=sharing

IDEA & MARKET

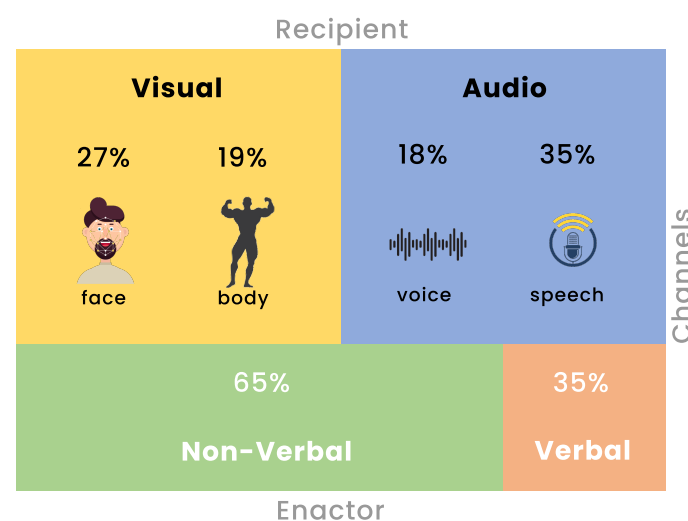
Market Opportunity

There are about **40 million blind people** and **246 million people with low vision** in the world.

---- World Health Organization

Problems

- There is about **65% of non-verbal information** in communication, while blind people **can only receive half** the information sighted people have.



- People **value non-verbal cues more** when judging the attitude of interpersonal communication.
- Blind people **lack feedback** on non-verbal information.

Solution - Lookine

Lookine is an iteration system that aims to help blind people unable to receive non-verbal information on social occasions by using visual recognition technology.

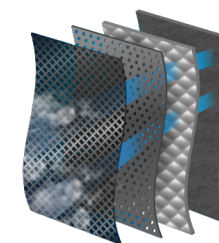
Service



Various Non-verbal Information Offered



Real Social Experience Offered



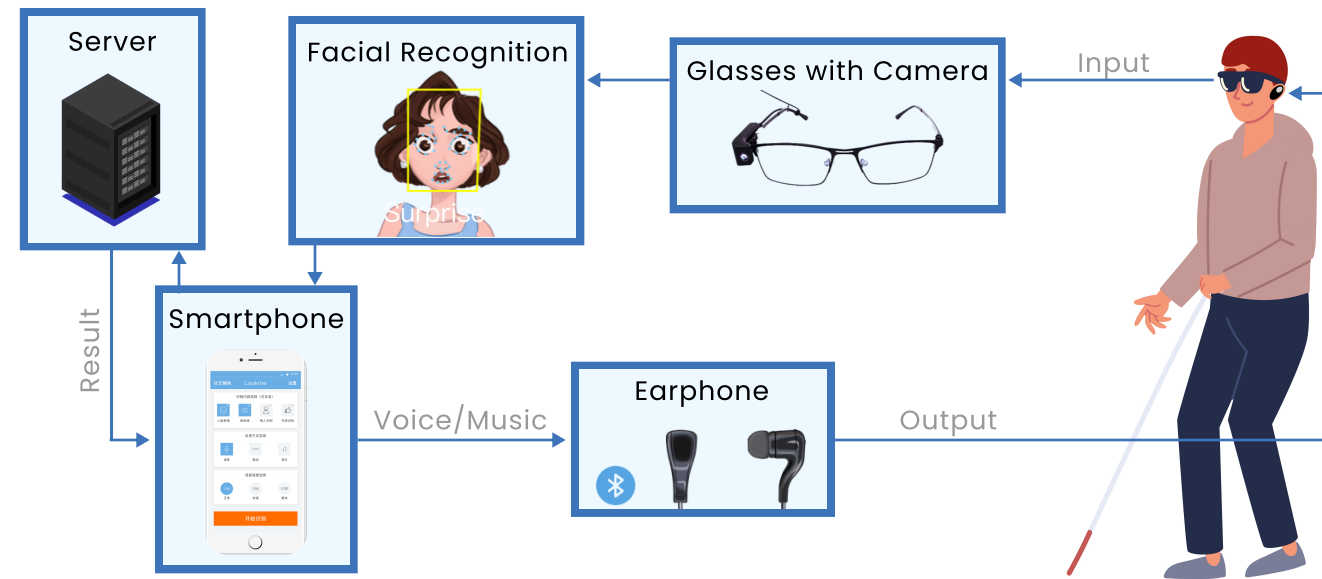
Filtering Mechanism
only convey urgently needed emotional information



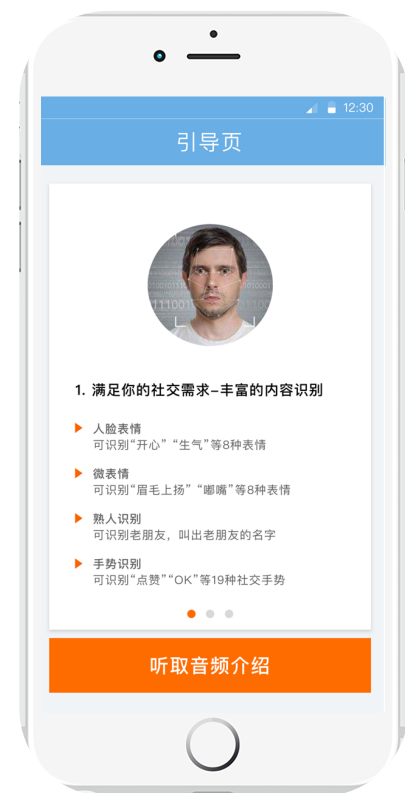
Emotional Comfort Assistance
comfort blind people when encountering social problems

DEVELOPMENT

Hardware



APP UI Design



User Guidelines

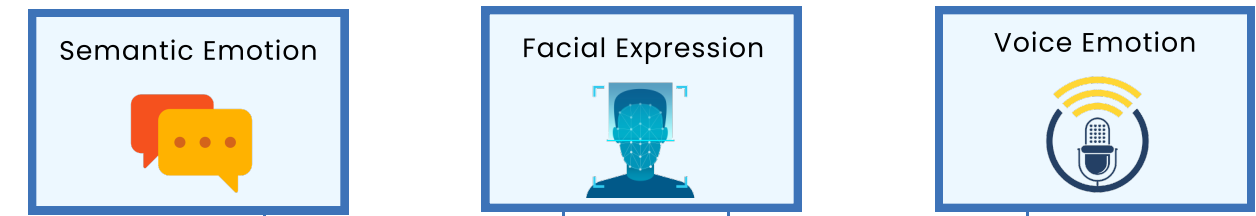


Function Selection (Start Recognition)

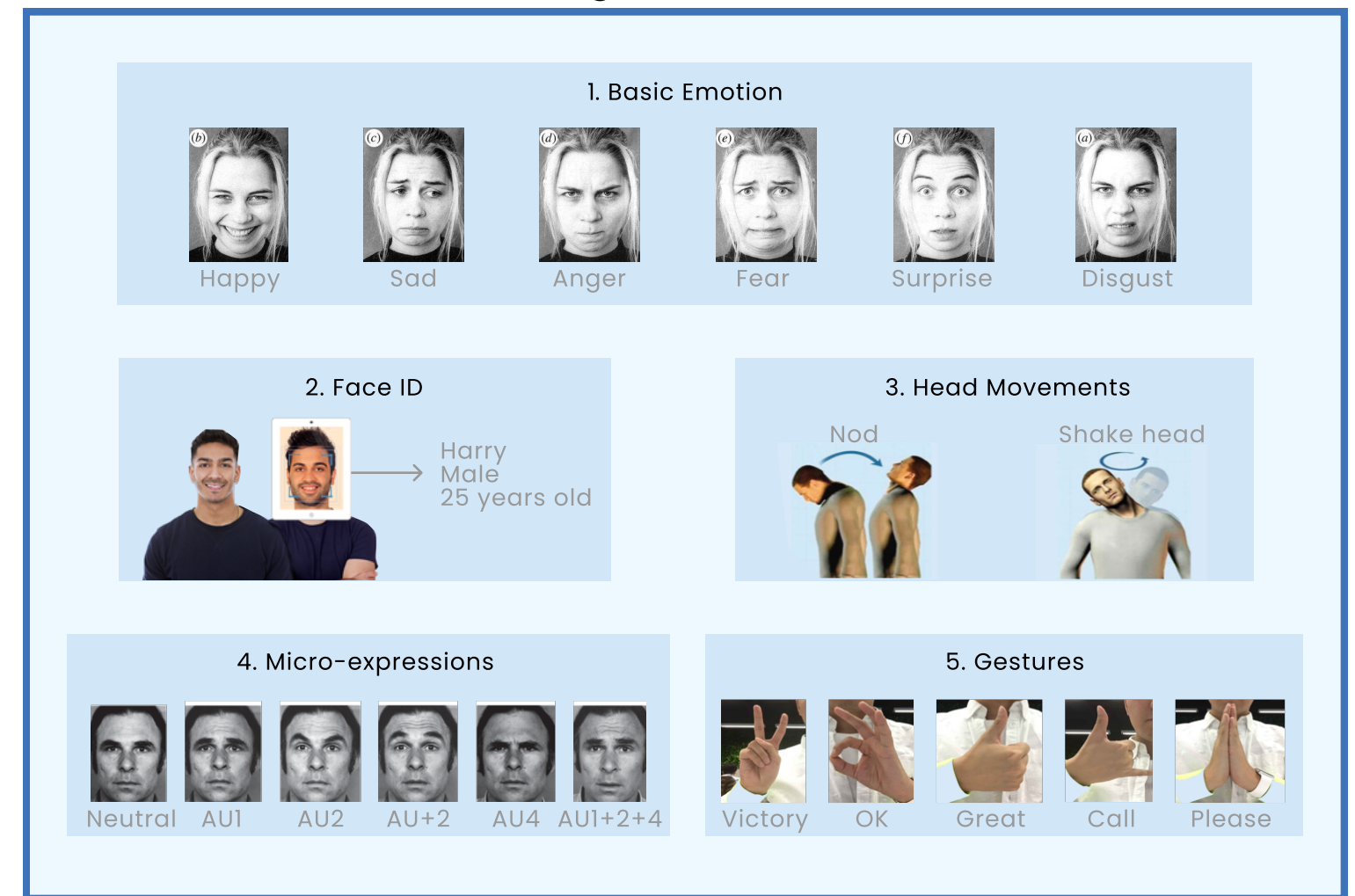


Emotional Comfort

Recognition Process



Recognition Result



Convey Non-Verbal Information Emotional Comfort Assistance



FEASIBILITY & USABILITY

Purpose

Result

Blind People's Needs

Investigation of the circumstances in which blind people are more in need of facial expressions recognition.

When facial expressions are **inconsistent** with the emotion of voice / semantic, blind people think it is **more necessary** to know others' facial expressions.

Effectiveness of Filtering Mechanism

Investigation of whether the system will be more effective after filtering.

Through the filtering mechanism, the **recognition accuracy is higher** and the **number of interferences is lower**, indicating that the filtering mechanism is effective.

User Experience

Fluency, Difficulty, and Pleasure to use.
(10 for good, 1 for bad)

The average score of three factors are **above 9** with guidance.
Overall, Lookine has a good user experience.

Investigation of blind people's emotions after receiving certain types of emotional information.

When the emotion of voice / semantic is positive and inconsistent with facial expressions, blind people will have a more negative emotional experience.



Our design is to **allow blind people to learn and experience the same way as sighted people**, experience social life as normal.