Project #: 220307
Workshop: Home Communications
Mentor: Dr. Toma Geber

Members:

Or Lantsman
Tennis protégé

Daniel Malky
Snooker enthusiast

Micha Levy
Professional sleeper
Problem:

• Gap of the hard-of-hearing community.
• 1 in every 500 children is born deaf.
• Hard to communicate outside the close circle.
• No easy solution for learning.
Target & Intention

• Help the deaf and mute community to easily communicate with anyone and anywhere, regardless of locality.

• Raise awareness of sign language use within the population, while offering a fun way of learning the skill.
Solution:

• Signify – A mobile app for translating sign language in real time.
• Uses a CNN model to identify words / letters within a frame.
• Built-in autocorrect feature to overcome beginner mistakes.
• Multi-language support.
• Academy feature that helps the users learn and correct themselves anywhere, anytime.
Signify

**Letter Detection**

Predicted Text:

MY NAME IS OR

**Word Detection**

Predicted Text:

DO YOU WANT HAMBURGER

**Academy**

Ice cream
**Accuracy**

- Precision and recall metrics over steps.

**Feedback**

- Poll results:
  - Sounds cool!!!: 80.58% (112 votes)
  - Meh...: 19.42% (27 votes)

- Comments:
  - Prestigious-Bison865: 3 days ago
    - Wow! I would love an app like that!!
  - Daniel Malky: 3 days ago
    - Signed up!
Architecture - Training:

**Random Forest ML Model**
(Data Science with Python – Sarel Cohen, George Kour)

**YOLO V5 Object Detection CNN Model**
(Computer Vision – Yoni Chechik)
Frames are taken from the mobile camera and sent to the Signify server. Frames are being processed and then sent to ML models for identification. Results are reviewed, handled and sent back to the user.
Architecture – Technology Stack:

**Signify**

**Engine**
- Open – CV
- YOLO V5
- SKLearn
- Meidapipe
- Python

**Server & Network**
- Node.js
- Express.js
- TypeScript

**Client**
- React Native
- Google Translate API
- JavaScript
Other Solutions

- Sign language detection using sensor gloves.
- Non real time solutions.
- PC webcam-based solutions.
- Online tutors.

Signify
- Portable.
- No additional equipment required.
- Fast & Real time.
- Learn like a champ.
Thank You!

Signify

ANY QUESTIONS?