



**Signify**

# Signify

Project #: 220307

Workshop: Home Communications

Mentor: Dr. Toma Geber

## Members:



**Or Lantsman**

Tennis protégé



**Daniel Malky**

Snooker enthusiast



**Micha Levy**

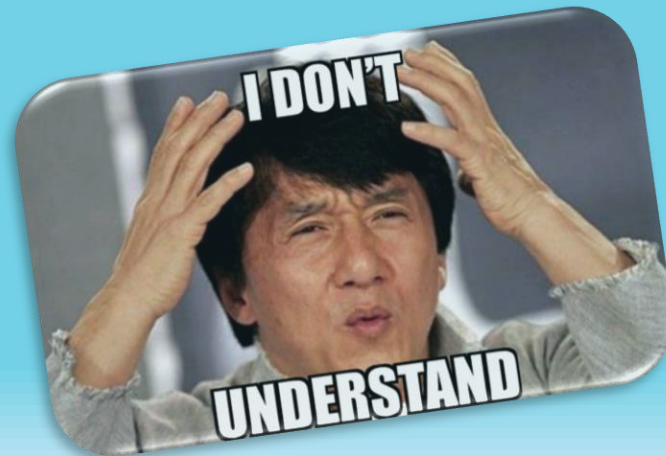
Professional sleeper



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# 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

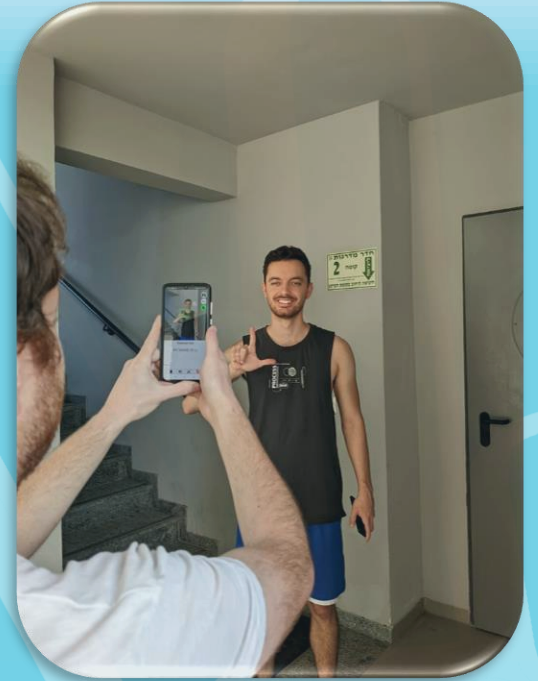
- Help the deaf and mute community to easily communicate with anyone and anywhere, regardless of locality.
- Raise awareness of sign language use within the population, while offering a fun way of learning the skill.





# Solution:

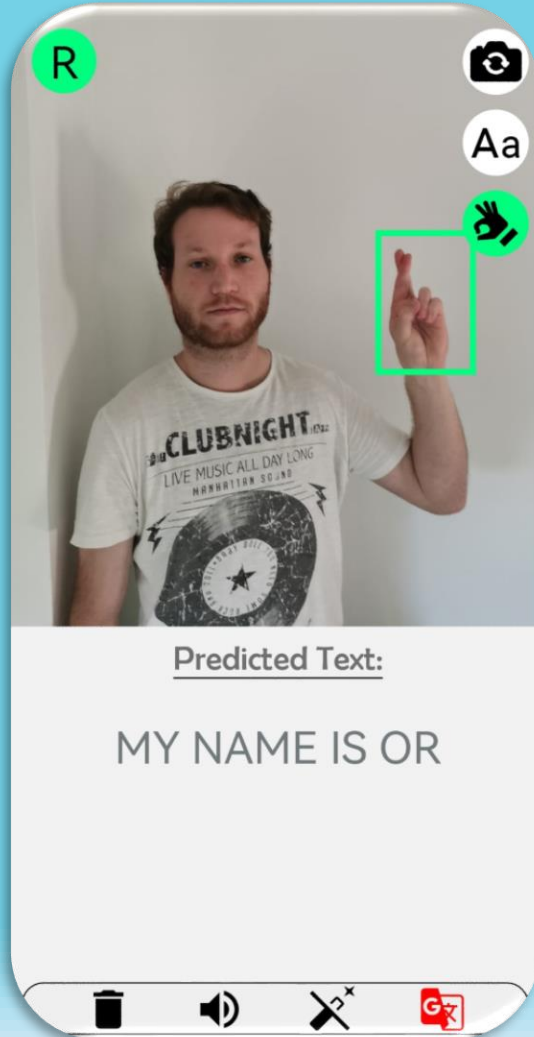
- Signify – A mobile app for translating sign language in real time.
- Uses a CNN model to identify words / letters within a frame.
- Built-in autocorrect feature to overcome beginner mistakes.
- Multi-language support.
- Academy feature that helps the users learn and correct themselves anywhere, anytime.



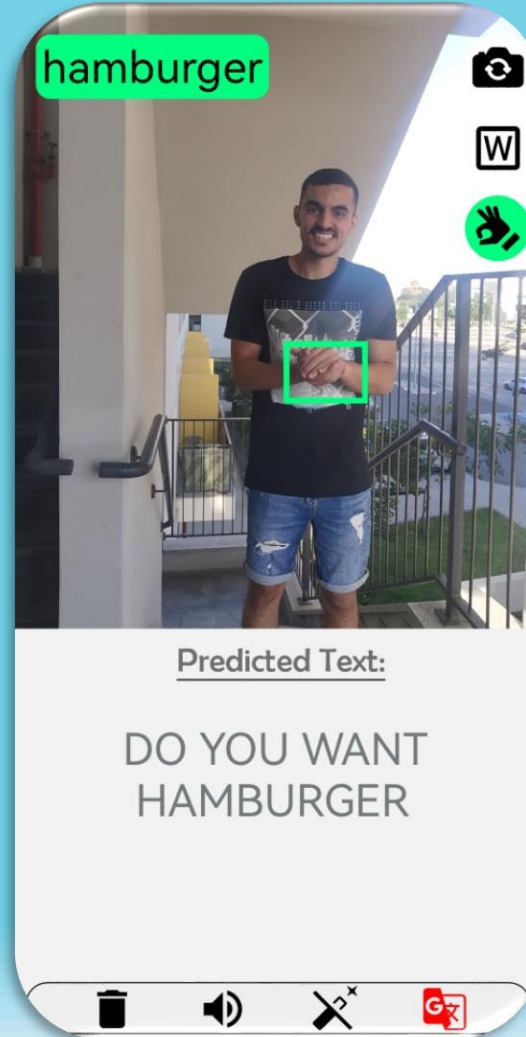


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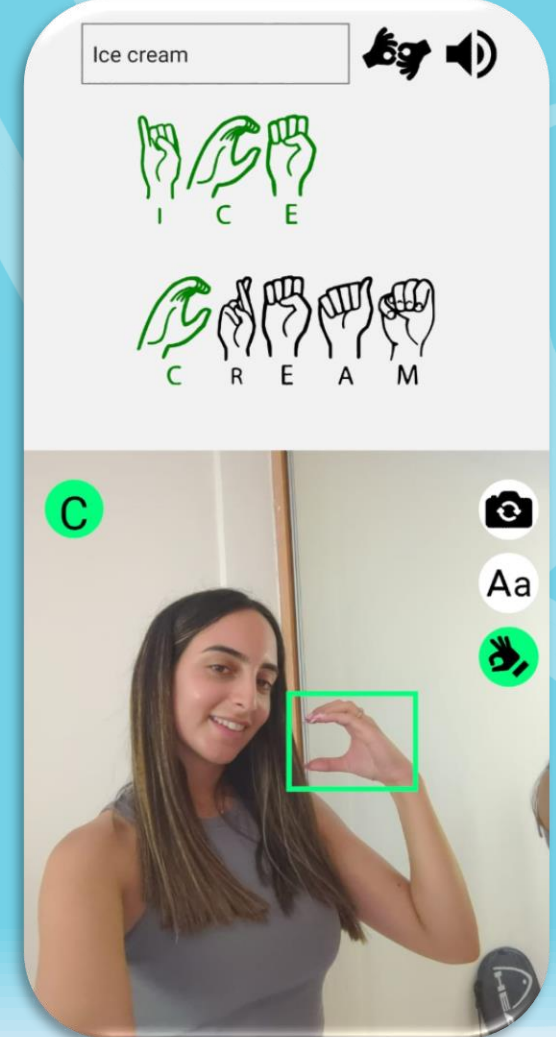
## Letter Detection



## Word Detection



## Academy

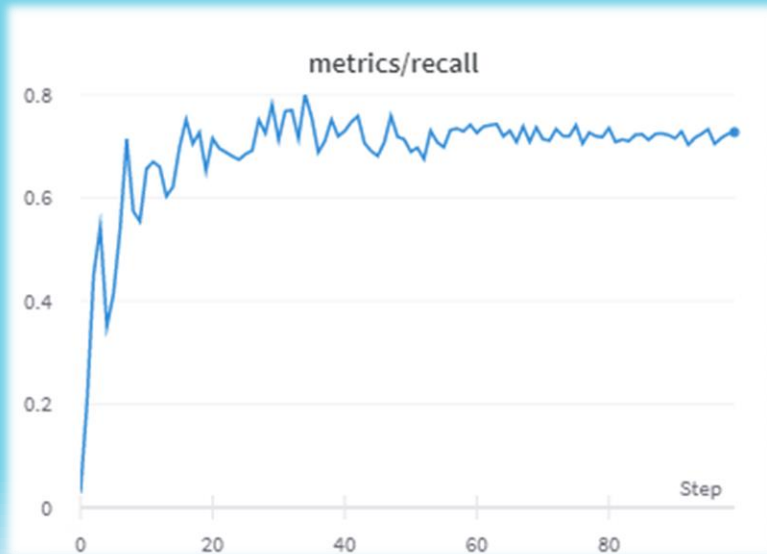
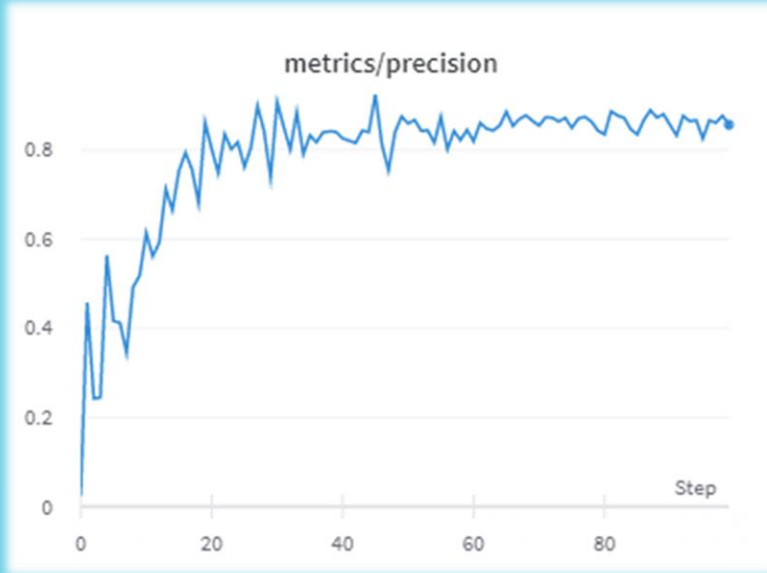






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## Accuracy



## Feedback

Posted by u/MrPoPo555 3 days ago

Please help me by voting on this quick ASL poll :)

Hey everyone!

My name is Daniel, and as part of my graduation project in Computer Science - me and my 2 partners have created a mobile app that can translate sign language in real time.

The app requires no additional equipment other than a mobile phone camera and can be used anywhere, anytime. It really helps beginners understand the basics of ASL.

For my final presentation I need to know how much this app seems welcomed in the community.

Please take the time to answer this single question poll (anyone is welcome to answer):

<https://strawpoll.com/polls/DwyogG5LjgA>

Or, writing your thoughts in the comments are cool too!

Thanks in advance!!!

Daniel



Prestigious-Bison865 · 3 days ago

Wow! I would love an app like that!!

### Signify - ASL detection application in real time.

by Daniel Malky · 3 days ago

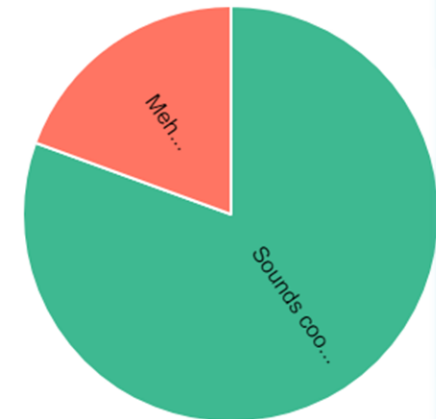
Sounds cool!!!

80.58% (112 votes)

Meh...

19.42% (27 votes)

Total votes: 139





# Architecture - Training:

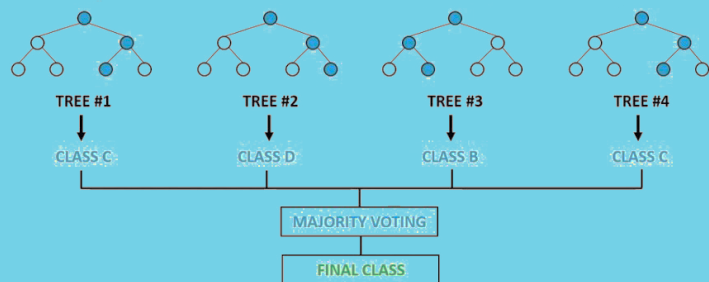
Extract data



Transform

1	One_Hand	Face_Han	Face_Han	Hand_Elb	Hand_Elb	Tip_1_X
2	0	28	-72	1	14	-6
3	0	24	-70	-1	14	-6
4	0	28	-72	1	12	-4
5	0	29	-77	5	15	-3
6	0	29	-73	1	13	-5

Train

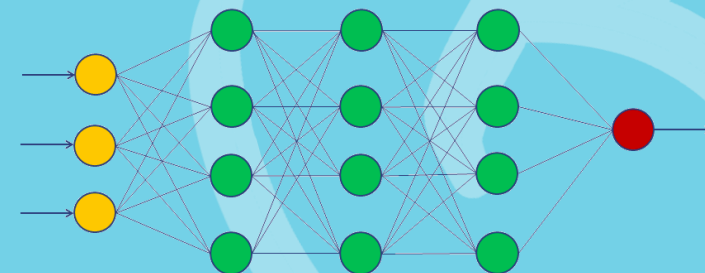


## Random Forest ML Model

(Data Science with Python – Sarel Cohen, George Kour)



Train

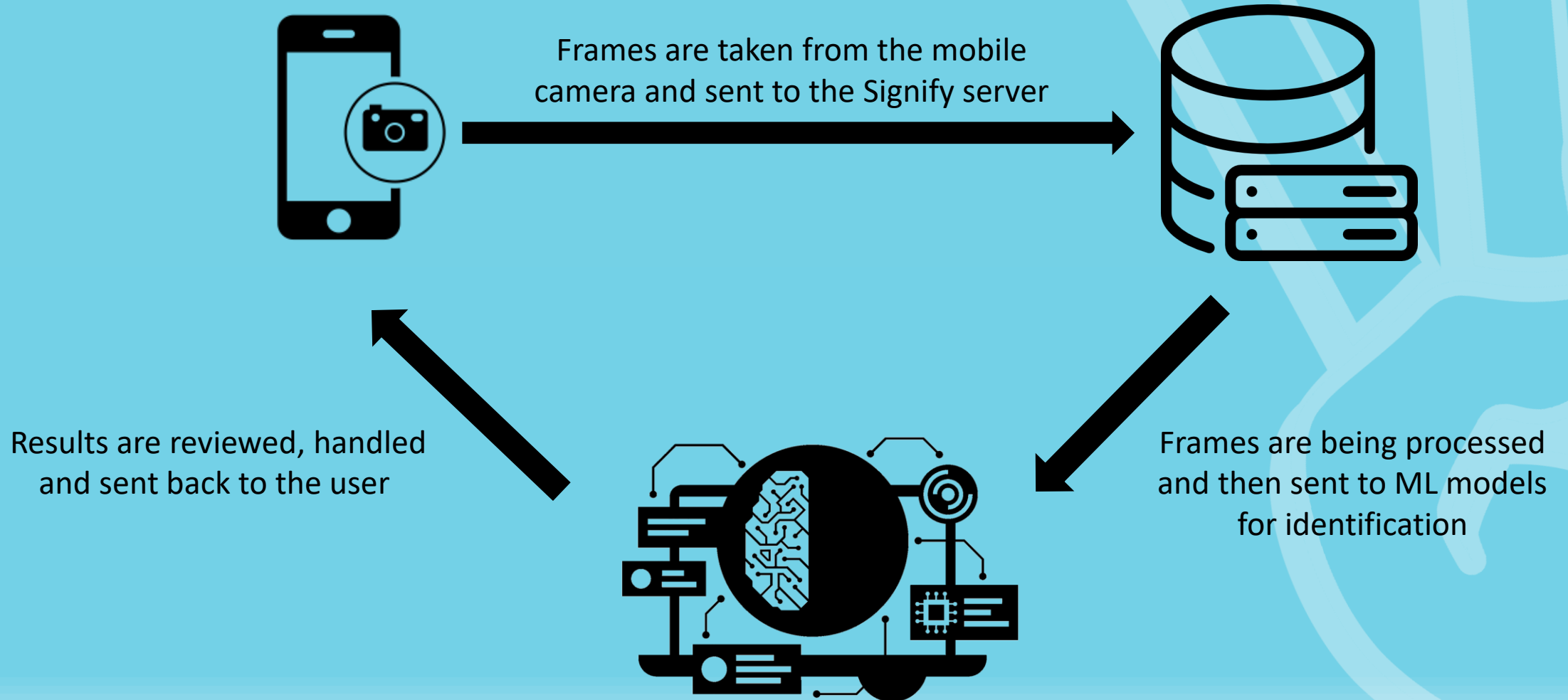


## YOLO V5 Object Detection CNN Model

(Computer Vision – Yoni Chechik)



# Architecture - Workflow







## Signify

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

# Architecture – Technology Stack:

## Engine



## Server & Network

- Node.js
- Express.js



- TypeScript



## Client

- React Native
- Google Translate API



- JavaScript





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# 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.



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**Thank You!**

