

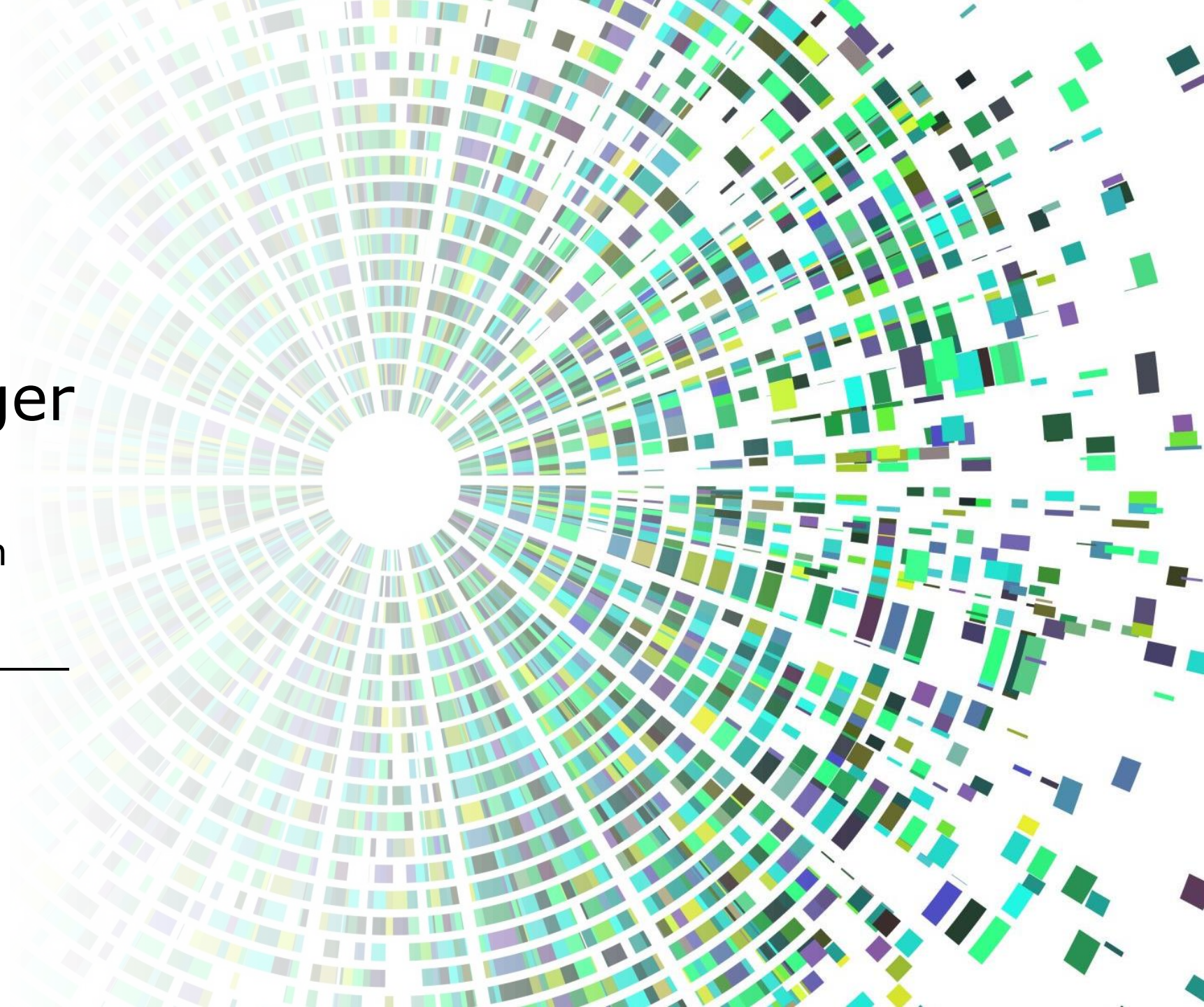


Waseet Messenger

(Arabic Sign Language
translation & Simulation on
Smart Phones)

Presented by:

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Problem Definition

Those who suffer from hearing and speaking problems (**deaf people**), like other segments of society, need to express themselves and communicate with others, especially **through technology and social media**. Therefore, sign language is their means of communicating with one another and with others. It is a descriptive language based on the representation of words and letters of the alphabet in the form of hand and body movements and facial expressions. Since the sign language is considered to be the mother tongue of the deaf while the written Arabic is the second language for them, they face some difficulties in understanding and writing the Arabic language.

Previous Works

- *الترجمان في لغة الإشارة* : specializes in automatic translation of speech, text and web content to Sign Language using 3D avatars.
- It has some limitations to translate large phrases and preserve the attention in the phrase.

Vision

- Our vision is to see deaf people can express themselves and communicate with themselves or others **through technology and social media** without any interruption and several problems.

Idea

- Therefore, we decide to **merge** the previous work of الترجمان and **innovate** in new design represents an AI-based solution that provides a chatting system called "Waseet Messenger".

Software and AI-based Solution (Waseet Messenger)

- **Waseet Messenger** is a chatting system like FB Messenger, Telegram or WhatsApp, designed to be used by deaf as the same as the not deaf people, so that there will not be any difference among them, everyone use his/her preferred language.

Waseet Messenger Features

- Waseet User Modes
 - Deaf
 - Not Deaf
- Waseet Keyboard for Arabic Sign Language
- Waseet AI Simulator for Arabic Sign Language

Waseet User Modes

- There is two user modes:
 1. Deaf (**assumption**: who can communicate only through Arabic sign language).
 2. Not (**assumption**: who can communicate through natural language, Arabic language in our case).

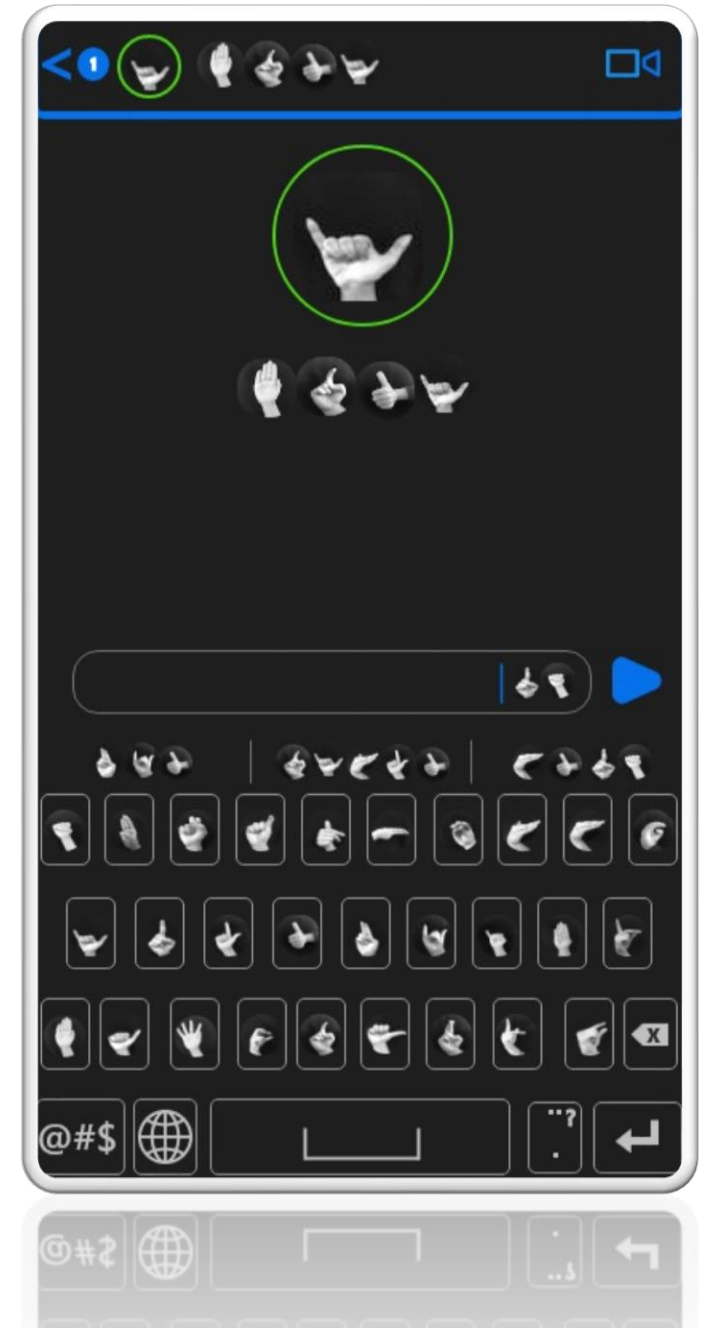
اختيار طريقة العرض

الحروف الابدجية



Waseet Keyboard for Arabic Sign Language

Waseet provides a keyboard that contains the Arabic language signs for the 28 characters in the Arabic alphabetic instead of ordinary characters.



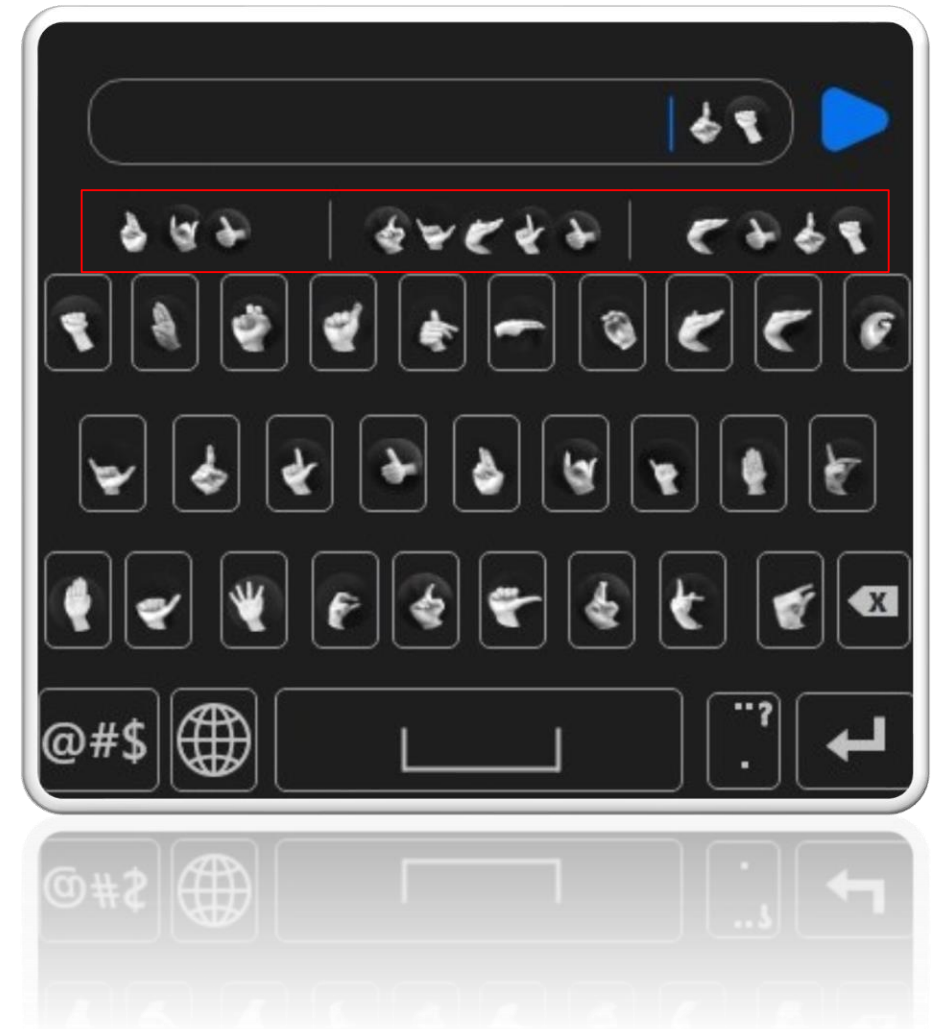
Waseet Keyboard (Autocomplete)

Currently, most chatting apps have a smart autocomplete feature while using the chat keyboard so that it can be smart and easy for the user during writing by suggesting the next patterns for the current pattern. Therefore, our chatbot also has these autocomplete feature for the Arabic sign language by suggesting the next patterns of signs for deaf users.

Waseet Keyboard (Autocomplete)

- Example:

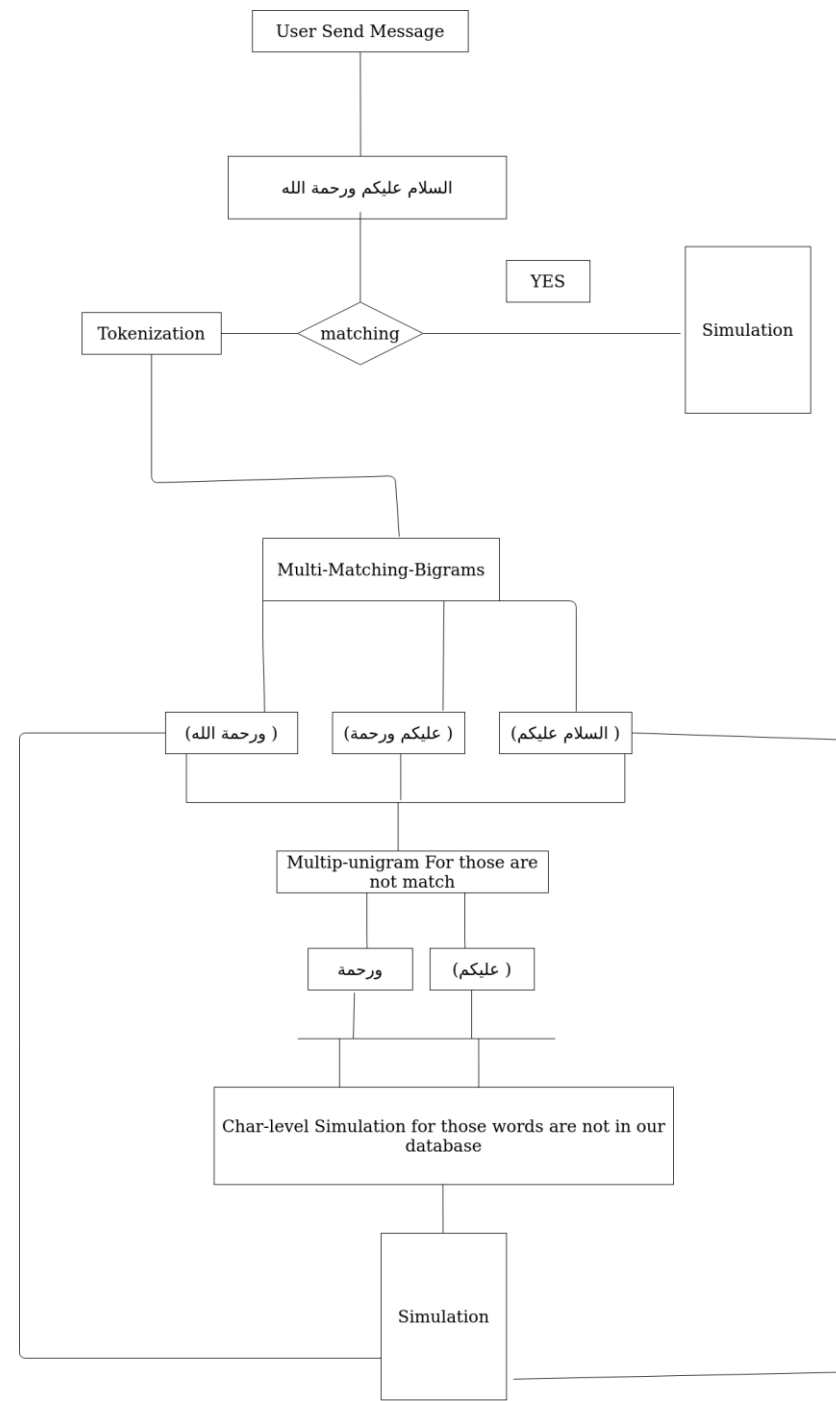
1. If a deaf person want to write phrase السلام عليكم, he selects the sign/s that means السلام then completes the phrase by choosing the sign/s of the word عليكم from the suggested patterns which have been generated by autocomplete.
2. If the deaf person want to write phrase صباح الخير, he selects the sign/s that means صباح, then completes it by choosing the sign/s of the word الخير and so on.



Waseet AI Simulator for Arabic Sign Language

AI algorithm that generates automatic Simulation for speech, text and web content to Sign Language using 3D avatars and overcome limitations of previous works.

Waseet AI Simulator for Arabic Sign Language (cont.)





Future Works

- We prepared a Business Model Plan for this project and intend to make integration with some organizations and charities in Egypt that responsible for helping deaf.