Project name

GESTO

Presented by

TEAM NAME — Paradox

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PROBLEM STATEMENT

As per the data collected from WHO about 5% of the total world population which constitute to be 360 million suffer from hearing loss and probably they can suffer muteness too and number of interpreters are decreasing day by day, we are not so far from the day when no one will know sign language except the one who needs it the most. As per the data provided by Indian Sign Language Research and Training Centre (ISLRTC) there are only 304 level-C interpreters in the whole country and that is too divided into region which is still drastically low.
So to counter this problem we are aiming to create such an app which will make everyone familiar to sign language.

ZONAL DATA OF INTERPRETER IN INDIA PROVIDED BY ISLRTC

NORTH	SOUTH	EAST	WEST	CENTRAL	NORTHEAST	ZONE UNKNOWN
108	43	41	46	36	4	26

TOTAL
304

DESCRIPTION

IDEA

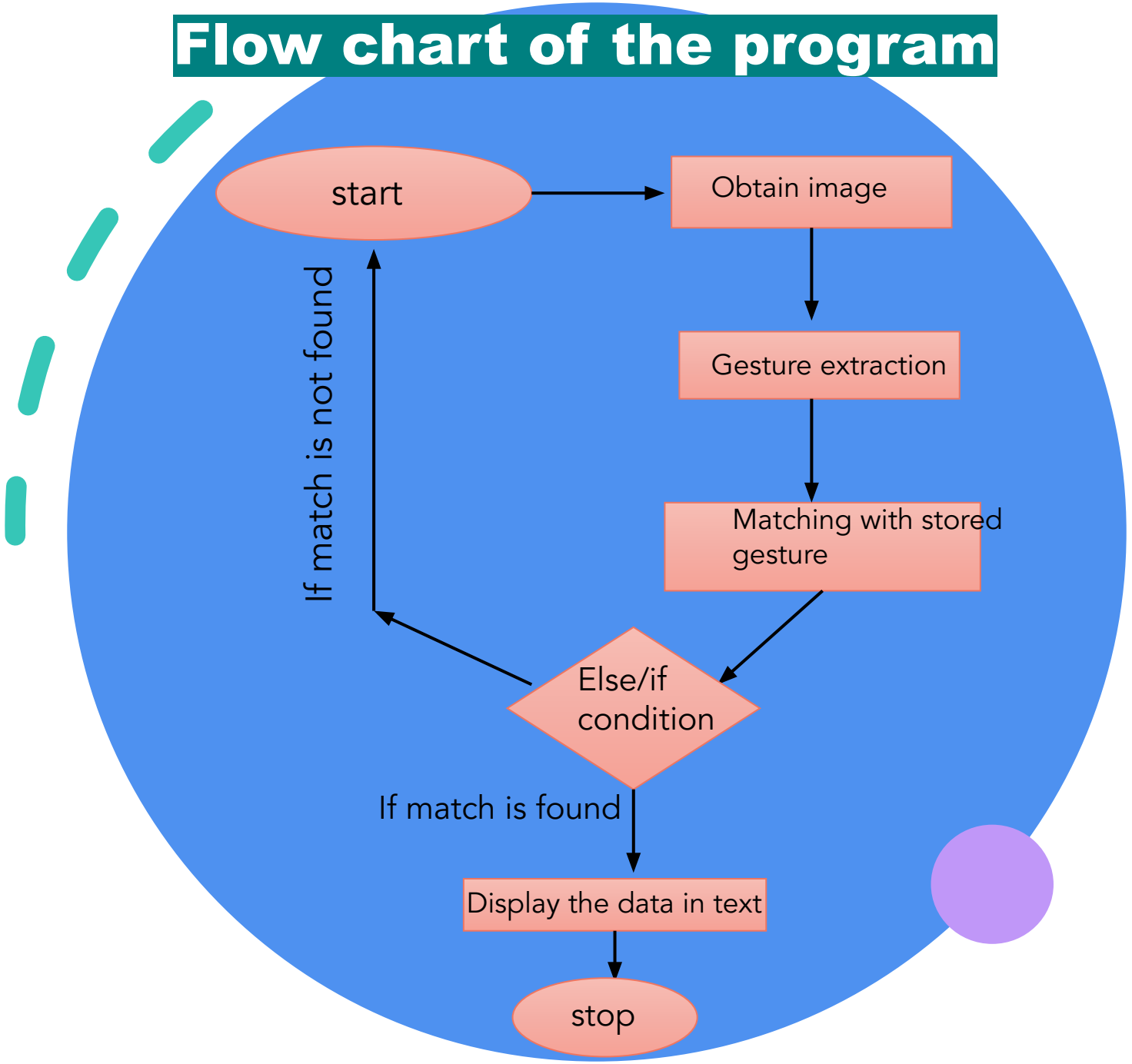
The aim is to create an application which will help mute people to convey their emotions efficiently to a person who do not know sign language. it will change their perception for the world and will enhance the productivity of the person using it. The app will also assist it's user to translate texts into sign language using animations.

solution

The app which is going to be designed will access your device's camera to take input from the subject person. With the help of AI and ML the data will be processed (to be specific, yolo algorithm is being used in here), the AI will detect the user's hand and body and will make a frame around it to interpret the signs. App will detect the gesture made by the subject person and then will find the same gesture in the access file to interpret the data accurately, the whole interpreted data will be visible to the user in the form of text.

This app will also convert the text data into the sign language, the whole process will use animation and graphics to covert the text data into sign language. When the user is done with text input that is the text to be converted into the sign language, the app will self generate the animated pictures and gestures on the screen which will help the user to communicate with the subject person, the user can show the screen of the device to the subject person where animated sign will be visible.

Flow chart of the program



Applicability

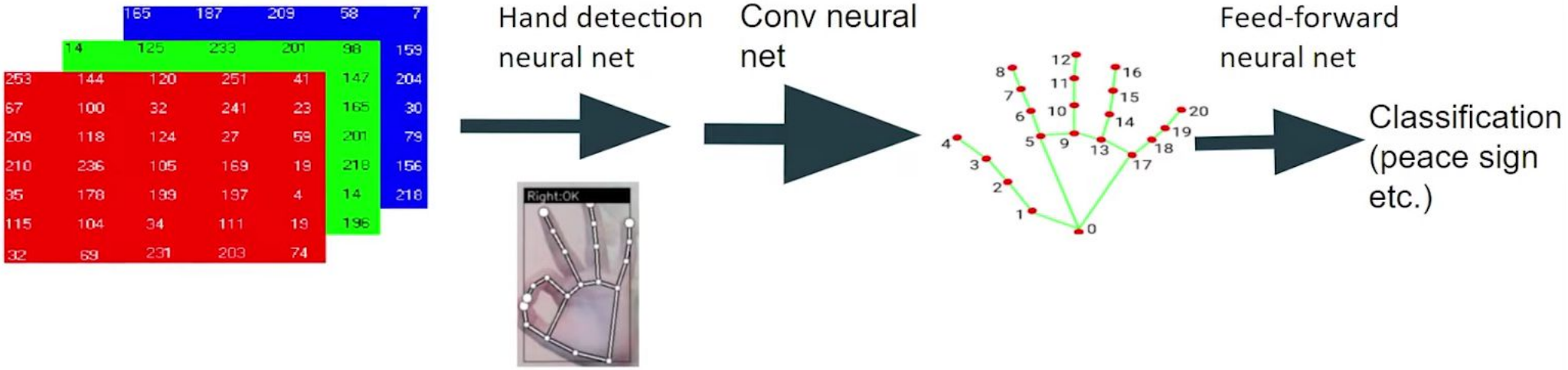
This app will ask for the permissions from users such as storage and camera access to operate properly, user will have to give every permission to the app and after getting done with it, User will have to point the camera towards the subject person to scan the gesture to be converted into text, after this it will automatically interpret the gesture into text.

The other way of using it as it can convert text into sign language too, the user will have to enter the text which is to be converted into sign language in the section provided in the app and this app will start working on the text and will convert the text into the sign language and will show the result on the screen in the form of animation, the user can show the screen to the subject person to communicate.

The whole program will work letter by letter as well as some special gesture for some special things. for example, home, there is two ways to interpret it, either it can converted into sign language letter by letter or it can be converted directly using special gesture.

Note

User can give space in the sentence by relaxing their hands down


165 187 209 58 7
14 125 233 201 98 159
253 144 120 251 41 147 204
67 100 32 241 23 165 30
209 118 124 27 58 201 79
210 236 105 169 19 218 156
35 178 199 197 4 14 216
115 104 34 111 19 196
32 69 231 203 74
Hand detection neural net
Right:OK
Conv neural net
Feed-forward neural net
Classification (peace sign etc.)

As the diagram shown above suggest the whole program will first detect the hand of the subject person and after the detection is done it will create a frame around the hand and will take each and every gesture separately stored in the access file after this process is done the program will match the hand gesture with the stored one and will show the data on the screen, what is different here in this app is it will convert text into sign language too and this makes it different and special from other gesture recognition projects.

Thank you

From,
Paradox