**1**

**Define your problem statement**

To provide an Efficient communication app which translates the hand signs into text and voice mode for deaf and dumb people.

**5 minutes**

**2**

**Brainstorm**

Write down any ideas that come to mind that address your problem statement.

**10 minutes**

VISHWA

SIVARANJANI

**Speech Synthesis is a software that converts text to artificial speech**

**4**

**Prioritize**

**TIP**

You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

**TIP**

Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

**20 minutes**

Brainstorm

& idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

**10 minutes** to prepare

**1 hour** to collaborate

**2-8 people** recommended

**PROBLEM**

**How can we provide efficent communication system for disabled ones?**

**Key rules of brainstorming**

To run an smooth and productive session

**Convolution Neural Networks is to be used to take hand sign as an input to extract edges, corners**

**Vision based**

Media Pipe framework can be used for face detection and recognize hand, hand keypoints

**Feature extractions like alignments of the finger, palm position are taken into consideration**

The input image

**Hand tracking can be done using clustering algorithms that treat each finger as cluster and identify exact sign**

Support Vector Machine is the clustering algorithm to be used for the hand tracking

Stay in topic. Defer judgment.

Encourage wild ideas. Listen to others.

**recognition is used i.e. the computer capture**

should be fetched with a speed of 20

If training and testing gestures are matched ,

then voice of

**Importance**

If each of these

Approximately, distance between hand and camera is around 30 to 100cm

Go for volume. If possible, be visual.

**the sign and find the gesture**

frames per second

text is generated

tasks could get

done without any difficulty or cost, which would have the most positive impact?

[**Share template feedback**](https://muralco.typeform.com/to/CiqaHVat?typeform-source=app.mural.co)

SIVAJI

If the system recognize unrecognizable gestures, it will be refreshed again for users

Webcamera capture the hand movement and provide as input to Tensorflow object detector

**When features are extracted, they are sent to the classification**

**algos like SVM to produce output**

AADHI SIVAN & DEEPAK

**Dataset is used for training CNN.**

**CNN performs training and verification of the recognized gestures**

**One dataset for hand detection**

**and the other for gesture detecton**

**Voice assistant is implemented that take input as speech patterns and convert the text to voice.**

**Feasibility**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | |
| **Media Pipe** |  | **Hand tracking can be done using clustering algorithms that treat each finger as cluster and identify exact sign** |  | **Convolution Neural Networks is to be used to take hand sign as an input to extract edges, corners** | **Support Vector Machine is the clustering algorithm to be used for the hand tracking** |  |
| **framework can** |
| **be used for face** |
| **detection and** |
| **recognize hand,** |
| **hand keypoints** |
|  |  |  | **Feature** |  | **When features**  **are extracted,**  **they are sent to the classification**  **algos like SVM to**  **produce output** |
| **extractions like** |
| **alignments of the** |
| **finger, palm** |
| **position are taken** |
| **into consideration** |
|  | **CNN performs** |  |  | **Voice assistant is implemented that take input as speech patterns and convert the text to voice.** |  |
| **training and** |
| **verification of** |
| **the recognized** |
| **gestures** |
|  |  |  |  |  | **Webcamera** |
| **capture the hand** |
| **movement and** |
| **provide as input** |
| **to Tensorflow** |
| **object detector** |
|  |  |  |  | **The input image** |  |
| **Speech Synthesis is a software that converts text to** | **should be fetched with a**  **speed of 20** |
| **artificial speech** | **frames per**  **second** |
| **Background** |  |  |  |  | **System is very sensitive , it can catch any image with the camera , it is necessary to have clear gestue identification** | |
| **light either too** |
| **bright or too** |
| **dim will result in** |
| **inaccurate hand** |
| **sign** |

Regardless of their importance, which tasks are more feasible than others? (Cost, time, effort, complexity, etc.)



**Template**

**After preprocessing , input is stored frame by frame into matrix**

**System is very sensitive , it can catch any image with the camera , it is necessary to have clear gestue identification**

Background light either too bright or too dim will result in inaccurate hand sign

If training and testing gestures are not matched , then System gets refreshed from start