A Project Design Report

On

Indian Sign Language Recognition

Submitted by:

Team Infinity (AICB1 – AI06)

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Project guide cum Mentor

INTRODUCTION:

Around 466 million people worldwide have hearing loss, and 34 million are children. `Deaf' people have very little or no hearing ability. They use sign language for communication. People use different sign languages in different parts of the world. Compared to spoken languages they are very less in number. India has developed a sign language by the name Indian Sign Language (ISL). In developing countries, there are only countable schools for deaf students. The Unemployment rate among adults with hearing loss is very high in developing countries .Our project aims to reduce the basic step in bridging the communication gap between normal people and deaf people using Indian sign language. Effective extension of this project to words and common expressions may not only make deaf people communicate faster and easier with the outer world, but also provide a boost in Developing autonomous systems for understanding and aiding them

WEB DEVELOPMENT TOOL:

In our project we choose Gradio as our web development tool. Gradio is graphical interfaces for Machine Learning models.

Creating Machine Learning models is nowadays becoming increasingly easy thanks to many open-source and proprietary based services (e.g. Python, R, SAS). Although, practitioners might always find it difficult to efficiently create interfaces to test and share their completed model to colleagues or stake holders .One possible solution to this problem is Gradio, a free open-source Python package which helps you to create models. Gradio is perfectly compatible with many Machine Learning frameworks (e.g. TensorFlow, PyTorch, etc…) and can be used even for arbitrary general-purpose Python scripts.
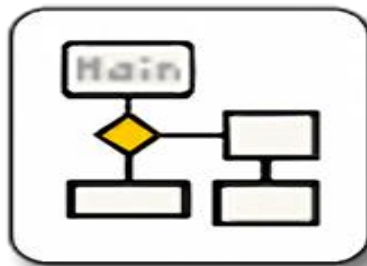
The Gradio library is efficient and it helps solve a huge problem plaguing the Machine Learning community – model deployment .According to study, 90% of Machine Learning models built are not deployed, and Gradio will be the efficient method to fix that .It also serves as a way for beginners and experts to show off their models and also test the models in real life.

gradio

SOFTWARE:

balsamiq Wireframes

WIREFRAME:

Wire framing is a way to design a website service at the structural level. A wireframe is commonly used to layout content and functionality on a page which takes into account user needs and user journeys. Wireframes are used early in the development process to establish the basic structure of a page before visual design and content is added.

ADVANTAGES OF WIREFRAME:

- One of the great advantages of wireframing is that it provides an early visual that can be used to review with the client
- Wireframes helps designers layout many sections of the website, resulting in a more fluid creative process.
- Wireframes can also help deliver the core message of your website more effectively and gather feedback at an early stage.
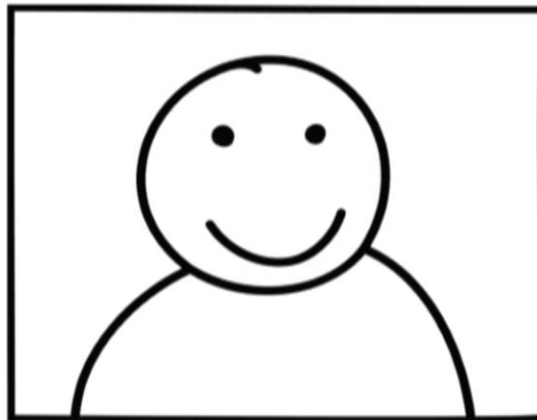
INDIAN SIGN LANGUAGE RECOGNITION

INDIAN SIGN LANGUAGE:

Indian Sign Language (ISL) is used in the deaf community all over India. There are only about 250 certified sign language interpreters in India, translating for a deaf population of between 1.8 million and 7 million. Sign language is utmost frequently used language in deaf community. It is a language which talk with help of hands movements, body parts and facial expression. Indian Sign language is commonly used sign language among deaf people in India. In different parts of India it has different signs but grammar is same throughout the country. Similiarly in different states of India has different languages(for example in Maharashtra Marathi, In Gujrat Gujrati etc., same way signs language has little difference in contradictory region.

Our Application aims to translate the Indian sign Language to English language which helps the normal people and deaf &dumb people to have healthier commuication

HOW TO USE OUR SITE:

1. Identify the Webcam
2. Make sure to give access to your gadget's webcam
3. Feed Indian Sign Language Signs to Webcam Screen
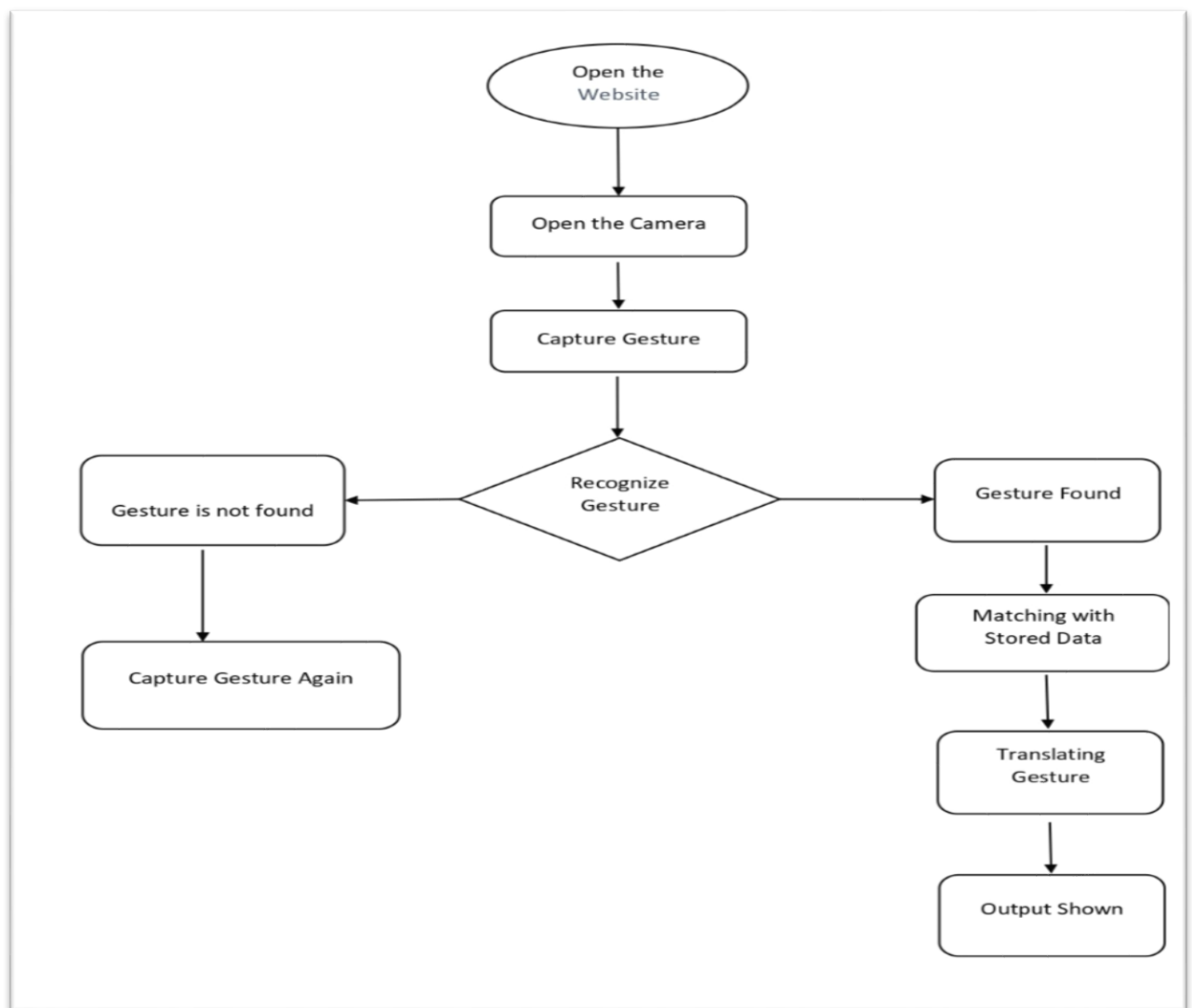4. Translated words/letters will be displayed

Translated Sign Language

USERFLOW:

A user flow is a chart or diagram showing the path a user will take in an application to complete a task. Product teams build user flows to intuitive design products, present the correct information to users at the right time, and allow users to complete desired tasks in as few steps as possible.

ADVANTAGES OF USERFLOW:

- Product managers, UX designers, and other product team members employ user flows.
- They communicate product goals and plans to stakeholders.
- They speed development and reduce errors

SITEMAP:

A sitemap is a blueprint of your website that help search engines find, crawl and index all of your website's content. Sitemaps also tell search engines which pages on your site are most important. Sitemaps may be addressed to users or to software. Many sites have user-visible sitemaps which present a systematic view, typically hierarchical, of the site. These are intended to help visitors find specific pages, and can also be used by crawlers. Alphabetically organized sitemaps, sometimes called site indexes, are a different approach.

```
┌──────────────┐
│  Home Page   │
└──────┬───────┘
       │
       ▼
┌──────────────┐
│   Content    │
└──────┬───────┘
       │
       ▼
┌──────────────────┐
│ User Instructions │
└──────┬───────────┘
       │
       ▼
┌──────────────┐
│ Web Camera   │
└──────┬───────┘
       │
       ▼
┌──────────────┐
│   Output     │
└──────────────┘
```