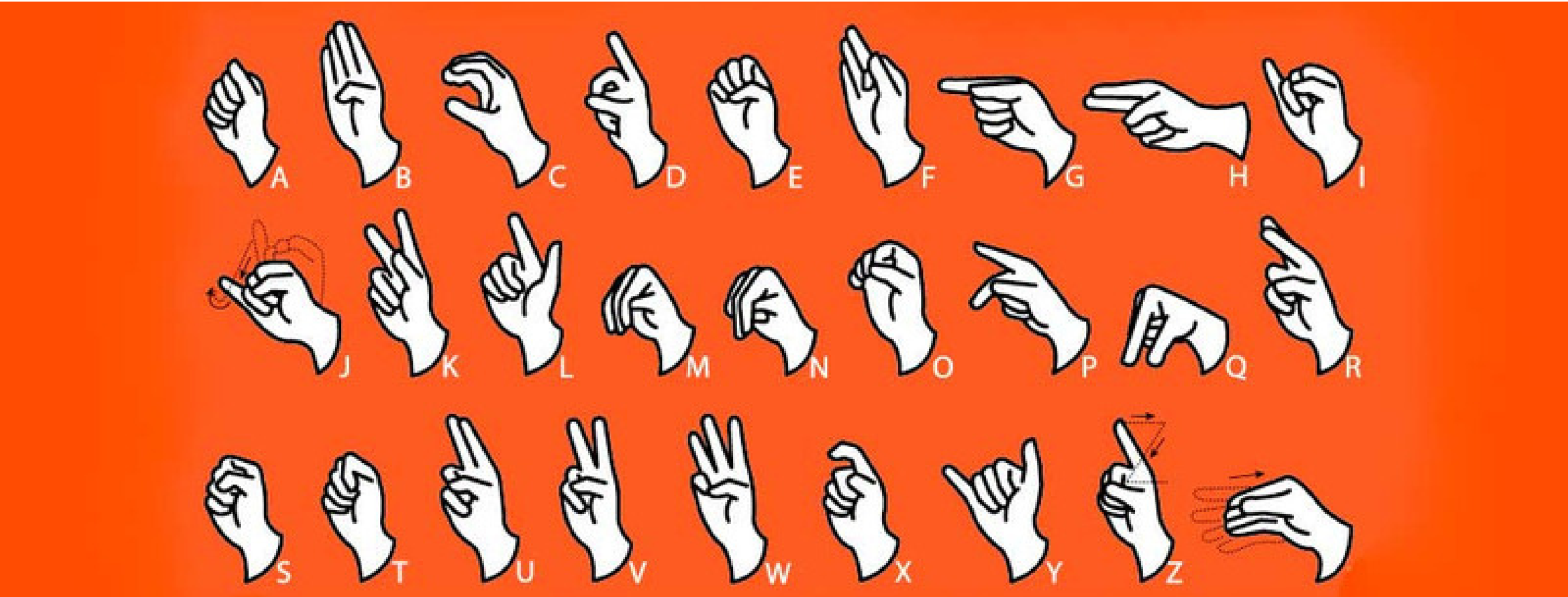
Charcha

Strengthening Communication



The Team

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SPONSORS

Our project idea was liked and recognized by two sponsors who happen to be our common connection. We would like to take a moment and thank them for putting in their faith and belief in us.

Project Idea

Charcha is an app built to initiate easy and effective communication among the hearing & speech impaired and also for a layman to communicate with them

Project Management Methodology

Out of all available project management methodologies for data science project like SEMMA, KDD, OSEMN & CRISP-DM, we chose

CRISP-DM

BACKGROUND & MOTIVATION

Communication is an art and everyone should be able to exercise it without any constraints. Having said that, we took this significant problem to solve by instigating a channel of communication between the hearing and speech impaired and the others using ASL sign language. Charcha will perform live transcription and convert fingerspelling to text.

Target Population

Our sponsors intended to develop and donate this technology to an NGO based in India serving as a medium of communication

The Process

Gathering Requirements

Meetings with sponsors to discuss outcomes of the project

Data Collection

Self-curated dataset of 108000 images

Building Models

State-of-the-art, Custom and Mixed Models

Rendering a GUI based app

Making a desktop app encapsulating the model and its subordinates

01

Gathering Requirements

- Video calls with sponsors to understand their requirements.
- Collecting information on the domain where the app will be deployed.
- Deciding on the scope of the project.

02

Data Collection

- Used OpenCV to click images.
- Clicked 3000 images for every alphabet and number (36 classes) totaling 108000 images.
- Separately collected test and validation tests to simulate real-world settings.
- Added more variation to the data after being requested by sponsors.

03

Building Models

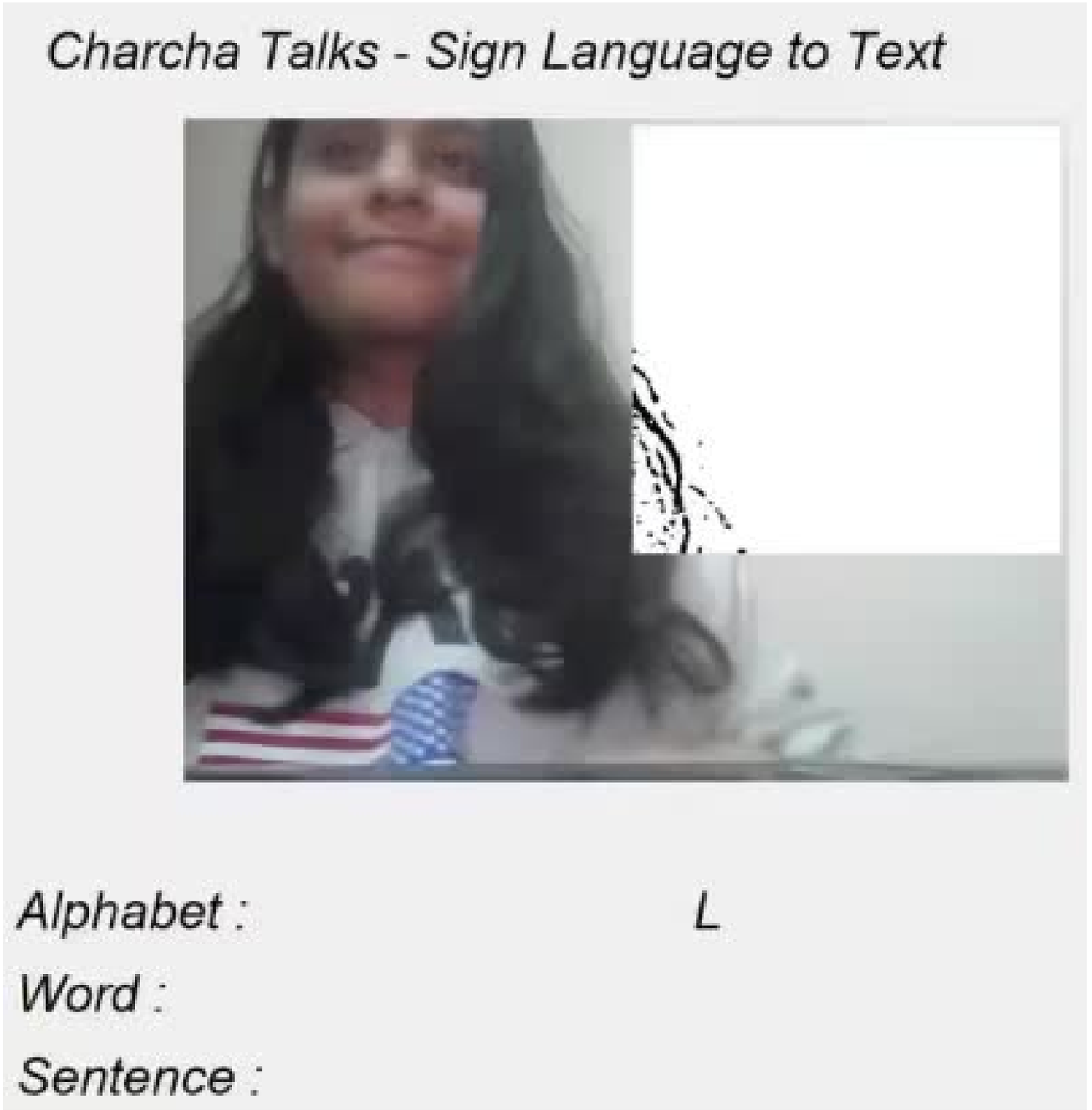
- Experimented with VGG-19, ResNet50, and ImageNet
- Custom Models (self-built CuDNN models)
- Mixed Models with state-of-the-art models in conjunction to custom models

04

Rendering GUI

- Used TKinter to make a desktop app
- Added a Gaussian Blur filter window for better and accurate predictions
- Integrated word to sentence formation logic

Meet Charcha



DOCUMENTATION

SECTION 1

- Project Charter

SECTION 2

- WBS
- Gantt chart
- Network diagram
- Risk register
- Stakeholder register

SECTION 3

- Software Requirements Specifications

SECTION 4

- Technologies Used
- Architectural design pattern
- Block diagram
- Design Viewpoints
- Including Logical Viewpoint (Draw class diagrams)
- Interface Viewpoint (screenshots of various aspects of Front End of the software)
- Interaction Viewpoint (Draw Sequence Diagrams)


Thank
you!