

Date	10 November 2022
Team ID	PNT2022TMID52497
Project Name	Real-Time Communication System Powered by AI for Specially Abled

PREREQUISITES

To complete this project you should have the following software and packages

ANACONDA NAVIGATOR :

Anaconda Navigator is a desktop graphical user interface (GUI) included in Anaconda Distribution that allows you to launch applications and manage conda packages, environments, and channels without using command line interface (CLI) commands. Navigator can search for packages on Anaconda.org or in a local Anaconda Repository. It is available for Windows, macOS, and Linux.

TENSOR FLOW:

The name TensorFlow comes from the design of the system. TensorFlow is designed to work with large data sets made up of many different individual attributes. Any data that you want to process with TensorFlow has to be stored in the multi-dimensional array. These multi-dimensional arrays are also called tensors.

Tensor Flow allows developers to create dataflow graphs structures that describe how data moves through a graph, or a series of processing nodes. Each node in the graph represents a mathematical operation, and each connection or edge between nodes is a multidimensional data array, or tensor.

KERAS:

Keras leverages various optimization techniques to make high level neural network API easier and more performant. It supports the following features:

- Consistent, simple and extensible API.
- Minimal structure - easy to achieve the result without any frills.
- It supports multiple platforms and backends.
- It is user-friendly framework that runs on both CPU and GPU.
- Highly scalability of computation.

OPEN CV:

OpenCV is the huge open-source library for the computer vision, machine learning, and image processing and now it plays a major role in real-time operation which is very important in

today's systems. By using it, one can process images and videos to identify objects, faces, or even handwriting of a human. When it integrated with various libraries, such as NumPy, python is capable of processing the OpenCV array structure for analysis. To Identify image pattern and its various features we use vector space and perform mathematical operations on these features.

The first OpenCV version was 1.0. OpenCV is released under a BSD license and hence it's free for both academic and commercial use. It has C++, C, Python and Java interfaces and supports Windows, Linux, Mac OS, iOS and Android. When OpenCV was designed the main focus was real-time applications for computational efficiency. All things are written in optimized C/C++ to take advantage of multi-core processing

FLASK:

Flask is a micro web framework written in Python. It is classified as a microframework because it does not require particular tools or libraries. It has no database abstraction layer, form validation, or any other components where pre-existing third-party libraries provide common functions. However, Flask supports extensions that can add application features as if they were implemented in Flask itself. Extensions exist for object-relational mappers, form validation, upload handling, various open authentication technologies and several common framework related tools.