Technology Stack (Architecture & Stack)

Date	15 November 2023
Team ID	Team-591551
Project Name	Project – ASL – Alphabet Image Recognition
Maximum Marks	4 Marks

Technical Architecture:
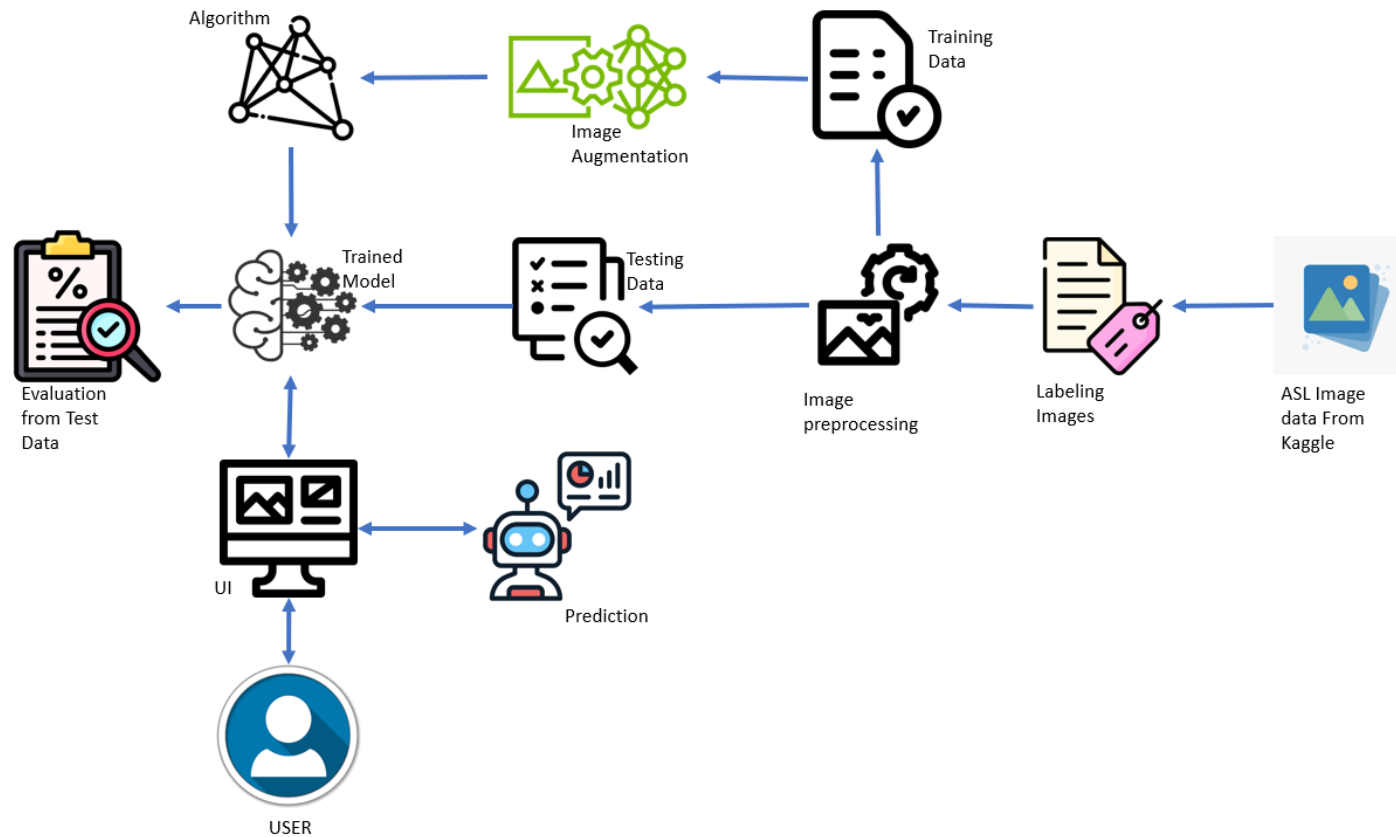
Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application	HTML, CSS, JavaScript
2.	Web Application Framework	Handles routing, request handling, and integrates the machine learning model.	Python Flask
3.	Machine Learning Model	Used for transfer learning in image classification.	VGG16
4.	Data Preprocessing	Used for data exploration, model training, and experimentation.	Jupyter Notebook
5.	Environment	Required for running Flask and the machine learning model.	Python Environment
6.	File Storage	File storage requirements	Local Filesystem
7.	Deployment Technologies	Integrated development environment for building and managing the Flask app.	VS Code
8.	Machine Learning Technologies	Used for building and training the machine learning model	TensorFlow Keras Libraries , sklearn and other libraries

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Open-source frameworks used	Flask Python
2.	Accessibility	The web application aims to enhance accessibility for deaf individuals, providing a means of communication through sign language recognition.	ASL Alphabet Image Recognition Model
3.	User-Friendly Interface	The web application provides an intuitive and visually appealing user interface for users to interact with and easily submit hand sign images.	HTML5, CSS3, JavaScript
4.	Real-Time Prediction	The web application leverages Flask and Python to facilitate real-time processing and prediction of hand sign images using the trained machine learning model.	Flask Webapp
5.	Customization	The Python backend allows for easy customization and addition of features, ensuring flexibility in adapting to future requirements or improvements.	Python
6.	Ease of Deployment	Deployment is made easy using VS Code for development and ensuring efficient deployment and accessibility for users.	VS Code
7.	Cross-Browser Compatibility	The use of modern web technologies ensures cross-browser compatibility, allowing users to access the application from various web browsers.	HTML5, CSS3, JavaScript