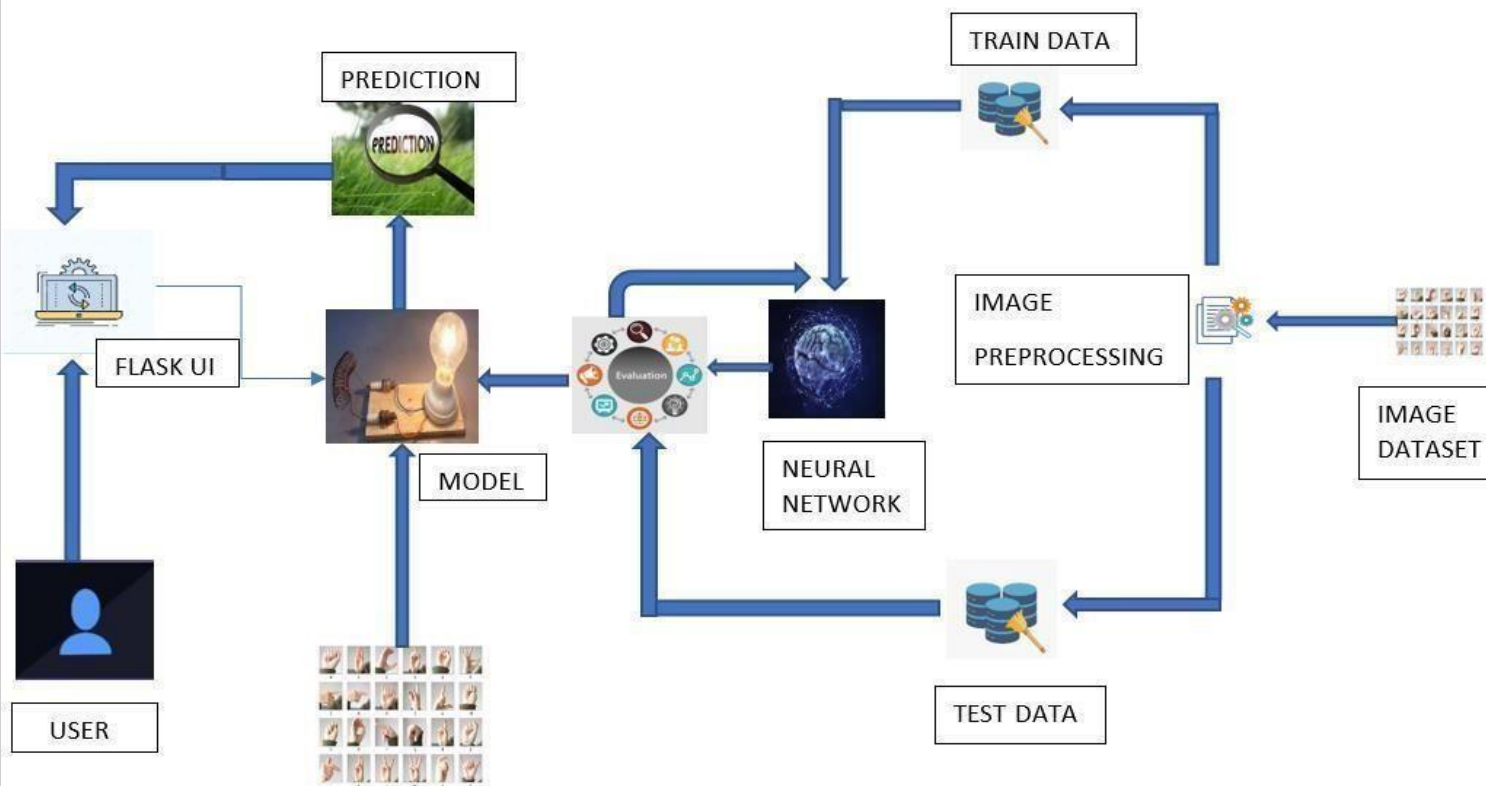


Project Design Phase-II-Technology Stack

| | |
|---------------|--|
| Date | 31-10-2022 |
| Team ID | PNT2022TMID37513 |
| Project Name | Project – Real time communication using AI for specially abled |
| Maximum Marks | 4 Marks |

Technical Architecture:

Technical Architecture (TA) is a technical blueprint with regard to the arrangement, interaction, and interdependence of all elements so that system-relevant requirements are met.



Guidelines:

1. Include all the processes (As an application logic / Technology Block)
2. Provide infrastructural demarcation (Local / Cloud)
3. Indicate external interfaces (third party API's etc.)
4. Indicate Data Storage components / services

Table-1 : Components & Technologies:

| S.No | Component | Description | Technology |
|------|---------------------------------|---|---|
| 1. | User Interface | Chat bot user interface | HTML, CSS, Python. |
| 2. | Application Logic | Logic for a process in the application | Python |
| 3. | Application Logic | Logic for a process in the application | IBM Watson STT service & TTS service |
| 4. | Cloud Database | Database Service on Cloud | IBM Cloudant |
| 5. | File Storage | File storage requirements | Local File system |
| 6. | Machine Learning Model | Neural Networks –CNN model, ANN model | Object Recognition Model –CNN model |
| 7. | Infrastructure (Server / Cloud) | Application Deployment on Local System | Local, Cloud Foundry, Kubernetes. |
| 8. | External Interfaces | Any interface that is transmitting information from the product to a third-party may contain information that is useful for an attack | Operating System - Windows, Mac, Linux; CPU & GPU (for training), WebCam, Scanners, Speakers and PC |

Table-2: Application Characteristics:

| S.No | Characteristics | Description | Technology |
|------|--------------------------|--|-----------------------------------|
| 1. | Open-Source Frameworks | Numpy, Pandas , Keras, Tensorflow, NLTK, Sonnet. | Python framework |
| 2. | Security Implementations | Security access controls ,Use of firewalls | SHA-256 |
| 3. | Scalable Architecture | Scalable AI | SEI Digital library |
| 4. | Availability | Use of Cloud, Virtual assistant | IBM Cloud IBM Watson Assistant |
| 5. | Performance | Image pre-processing and CNN | Python |