**SOLUTION ARCHITECTURE**

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| **Date** | November 2nd, 2023 |
| **Team ID** | PNT2022TMIDxxxxxx |
| **Project Name** | ASL – Alphabet Recognition |
| **Maximum Marks** | 2 Marks |

**Initial Setup**

* Create a new GitHub repository #GitHub
  + Initialize with README.md
  + Add. gitignore
  + Set up branch protection rules
* Set up virtual environment #Python
  + Install necessary packages
    - NumPy
    - Pandas
    - TensorFlow
    - Keras
    - Matplotlib
  + Verify package installation

**Data Collection**

* Collect ASL sign images #ImageData
  + Define sign categories
  + Source images
  + Verify image quality

**Data Preprocessing**

* Clean and preprocess image data #DataCleaning
  + Resize images
  + Normalize pixel values
  + Split data into training and test sets

**Model Building**

* Build Convolutional Neural Network (CNN) model #CNNModel
  + Define model architecture
  + Compile model
  + Train model
  + Evaluate model performance

**Deployment**

* Deploy model to a web application #Deployment
  + Create Flask application
  + Integrate model into application
  + Test application functionality

**Documentation**

* Document project processes and outcomes #Documentation
  1. Write project summary
  2. Document data collection process
  3. Explain data preprocessing steps
  4. Detail model architecture and training process
  5. Discuss model performance
  6. Describe deployment steps
  7. Reflect on project outcomes and potential improvements

**Wrap Up**

* Push final changes to GitHub #GitHub
  + Review and merge pull requests
  + Update README.md
  + Release project version

