**Project Design Phase-II**
**Technology Stack (Architecture & Stack)**

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|---|---|
| Date | 6 November 2022 |
| Team ID | PNT2022TMID21423 |
| Project Name | A Novel Method for Handwritten Digit Recognition System |
| Maximum Marks | 4 Marks |

**Technical Architecture:**

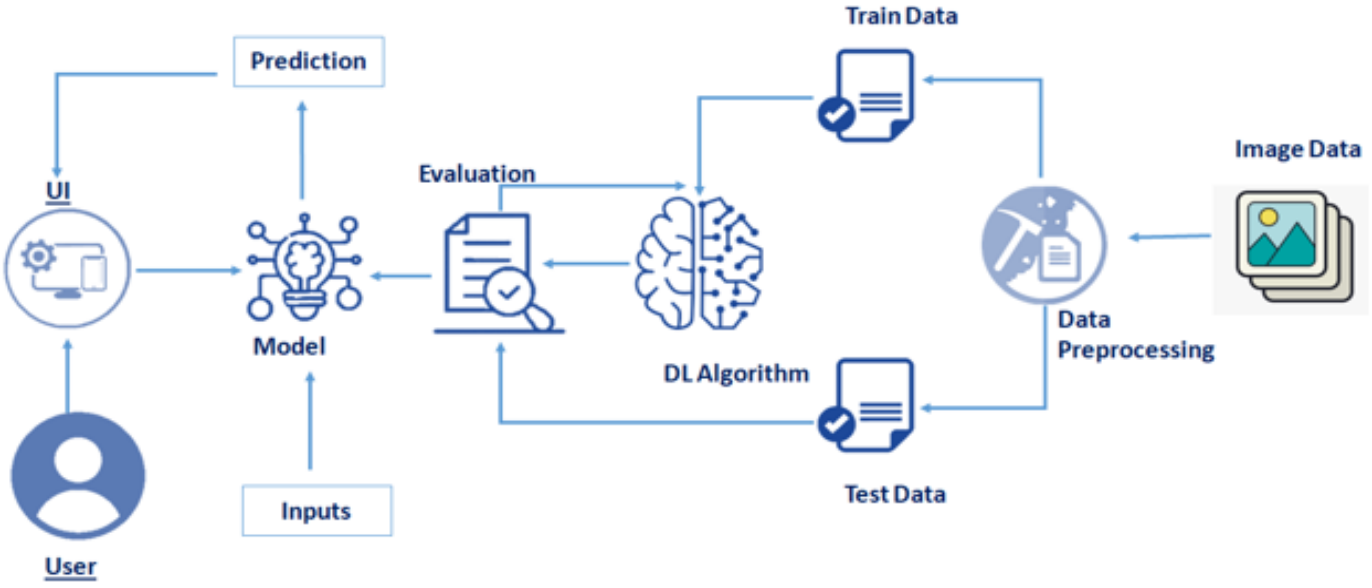


**Table-1 : Components & Technologies:**

| S.No | Component | Description | Technology |
|---|---|---|---|
| 1. | User Interface | The communication protocol being used in the proposed solution might act as an interface the way like WiFi, Bluetooth and ZigBee | Web UI, Mobile App |
| 2. | Application Logic | Numerous apps have been developed to help you convert your scanned documents into digital text. All those apps use a technology called Optical Character Recognition, or OCR. Upload a photo of your handwritten notes or use a scanner and transfer it to your computer, tablet, iPhone, or android device. | Python, IBM Watson STT service |
| 3. | Database | Data to be segregated and secured in the form of relational DBMS. | MySQL |
| 4. | Cloud Database | Database Service on Cloud | IBM Cloudant |
| 5. | File Storage | File storage requirements | IBM Block Storage or Other Storage Service or Local Filesystem |
| 6. | External API-1 | The MNIST database is a large database of handwritten digits | training and testing in the field of machine learning. |
| 7. | Machine Learning Model | Purpose of Machine Learning Model | SVM, K-NN, CNN etc. |
| 8. | Infrastructure (Server / Cloud) | Application Deployment on Local System / Cloud Local Server Configuration | Cloud Foundry |

**Table-2: Application Characteristics:**

| S.No | Characteristics | Description | Technology |
|---|---|---|---|
| 1. | Open-Source Frameworks | an open-source Python library developed by the Google Brain labs for deep learning research, you will take hand-drawn images of the numbers 0-9 and build and train a neural network to recognize and predict the correct label for the digit displayed | Keras, Tensor flow, Numpy, Pillow, Tkinkter technology |

| S.No | Characteristics | Description | Technology |
|---|---|---|---|
| 2. | Security Implementations | The developed application should be accessible in the way it can only respond to the comments of the relevant users | Encryptions, IAM Control |
| 3. | Scalable Architecture | The app format comes the way easier to handle and operate. | Not yet determined |
| 4. | Availability | The developed solution tends to be available in the market at any time | Not yet determined |
| 5. | Performance | Highly proper and betterment functionalities are to be ensured in the designed solution | Not yet determined |