

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

Date	14 October 2022
Team ID	PNT2022TMID43340
Project Name	A Novel Method for Handwritten Digit Recognition System
Team Members	Prem Kumar I M, Sathya Varshini R D, Susmeta A , Vishnu darshan S, Yashwant C M
Maximum Marks	4 Marks

Technical Architecture:

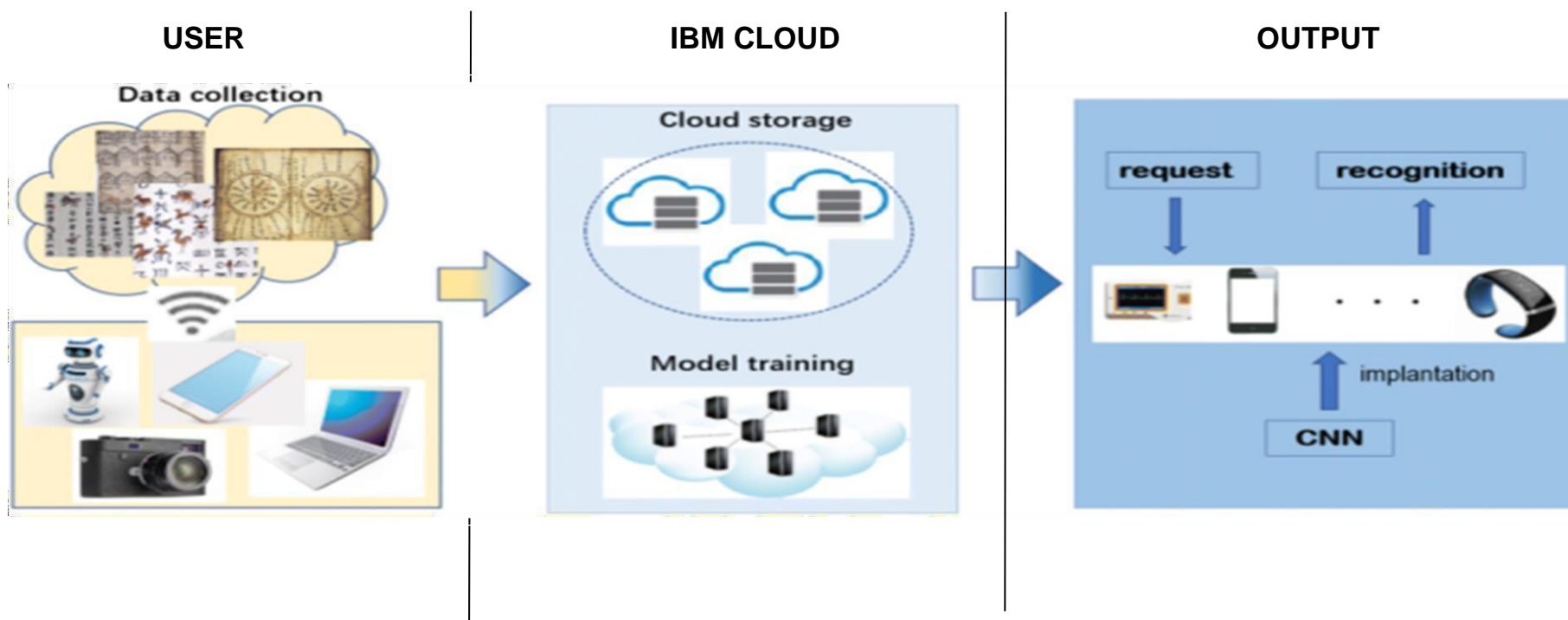


Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript
2.	Application Logic-1	Logic for a process in the application	Python
3.	Application Logic-2	Logic for a process in the application	IBM Watson STT service
4.	Application Logic-3	Logic for a process in the application	IBM Watson Assistant
5.	Database	Data Type, Configurations etc.	MySQL, NoSQL, etc.
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant
7.	File Storage	File storage requirements	IBM Block Storage
8.	External API-1	Purpose of External API used in the application	IBM Weather API
9.	External API-2	Purpose of External API used in the application	Aadhar API
10.	Machine Learning Model	Purpose of Machine Learning Model	Object Recognition Model
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration Cloud Server Configuration	Local, Cloud Foundry

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	The open-source frameworks used are listed.	The technology of Opensource framework
2.	Security Implementations	A list of all the security and access controls, firewalls, etc., that have been used.	SHA-256, Encryptions, IAM Controls, OWASP

S.No	Characteristics	Description	Technology
3.	Scalable Architecture	To support the system's architecture's ability to scale. versatile and very user-friendly.	3 – tier, Micro-services
4.	Availability	Abstract and figures. The ability to recognise handwritten digits has been put into practise. Based on shape analysis, these characteristics extract slope or slant information from the digit picture. They succeed in getting excellent recognition accuracy.	Distributed servers, IBM cloud
5.	Performance	Using common neural network implementations, the handwritten digits are correctly categorised with an accuracy of (98-99) percent.	number of requests per sec, use of Cache, use of CDN's

References:

1. <https://developer.ibm.com/patterns/online-order-processing-system-during-pandemic/> <https://www.ibm.com/cloud/architecture>
2. <https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d>
3. <https://www.leanix.net/en/wiki/ea/technical-architecture>
4. <https://www.researchgate.net/figure/An-Example-CNN-architecture-for-a-handwritten-digit-recognition-task>