

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

Date	14 October 2022
Team ID	PNT2022TMID03593
Project Name	Project - Classification of Arrhythmia by Using Deep Learning with 2-D ECG Spectral Image Representation
Maximum Marks	4 Marks

Technical Architecture:

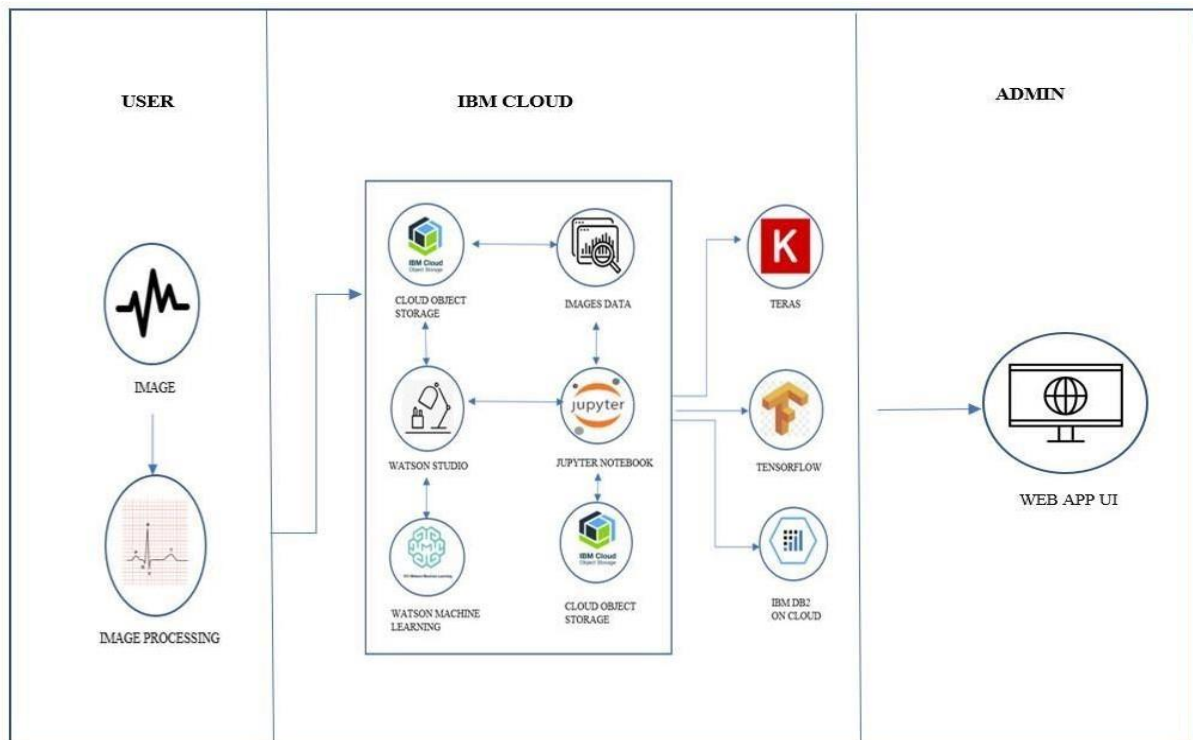


Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	web application using Flask.	HTML, CSS, JavaScript
2.	Image augmentation	Creating training model samples from the existing ones.	Python
3.	Building the model	Building model by using summing various layers and training the model with dataset	IBM Watson Cloud storage, IBM cloud Pak Data.
4.	Testing the model	Testing the model with dataset	IBM Watson Machine Learning
5.	Database	Database has the ECG signals of various arrythemia patients that are collectively forming the dataset.	IBM cloud storage
6.	Cloud Database	Database Service on Cloud is obtained	IBM Data Base 2.
7.	File Storage	requirement of file storage	IBM Block Storage
8.	Anaconda Navigator	The web model is deployed in and run on the local host with the help of anaconda navigator.	Anaconda Navigator
9.	Tensorflow	used for the numerical computation that makes machine learning and developing neural networks to happen.	Tensorflow library, Jupyter Notebook
10.	Keras	To make high level neural network API	Keras library, Jupyter Notebook
10.	Machine Learning Model	To distinguish the type of arrythemia with pictures uploaded by the end user.	Image Classification Model
11.	Infrastructure (Server)	Application Deployment on Local System is done	Local

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask, Jupyter Notebook	Flask, Jupyter Notebook
2.	Security Implementations	use of API key	IAM Controls,wml control(API Key)
3.	Scalable Architecture	Micro-services	API gateway
4.	Availability	Based on availability zones	IBM Watson studio
5.	Performance	Using CDNs.	IBM Content Delivery Network.

