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

Date	03October 2022
Team ID	PNT2022TMID51703
Project Name	Digital Naturalist-AI enabled tool for biodiversity research.
Maximum Marks	4 Marks

Technical Architecture:

A naturalist is someone who studies the patterns of nature, identifies a different kind of flora and fauna in nature. Being able to identify the flora and fauna around us often leads to an interest in protecting wild spaces, and collecting and sharing information about the species we see on our travels is very useful for conservation groups like NCC.
Field naturalists can only use this web app from anywhere to identify the birds , flowers , mammals and other species they see on their hikes, canoe trips and other excursions.

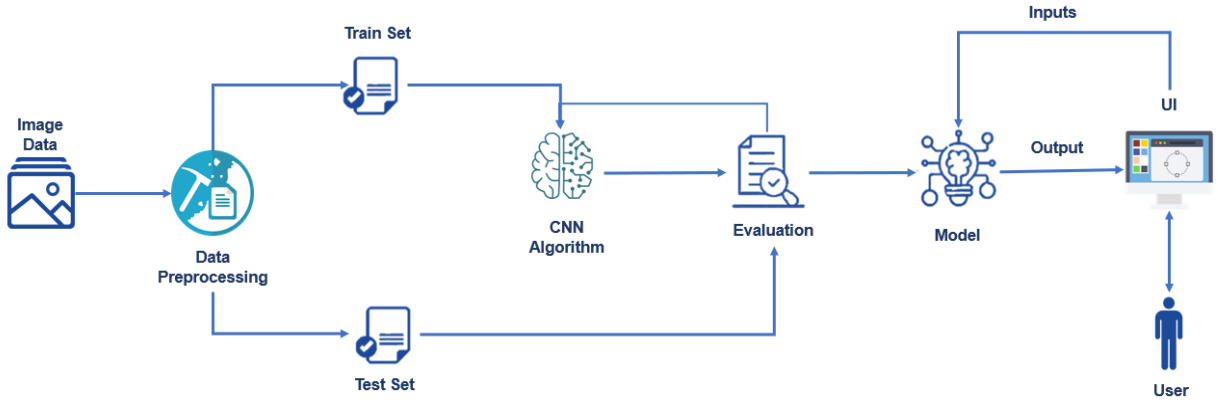

Table-1 : Components & Technologies:

S. No	Component	Description	Technology
1.	User Interface	To create an application for the hikers to identify rare species of birds, flowers, mammals by giving a picture taken by them.	HTML ,CSS, JavaScript
2.	Model(Input ,Output)	Inputs are birds, flowers, mammals. Output : image name.	Java/ Python
3.	CNN Algorithm	A CNN is a kind of network architecture for deep learning algorithm and is specifically used for image recognition and tasks that involve the processing of pixel data.	IBM AgroPad
4.	Train Set	A subset to train a model.	IBM Watson Assistant
5.	Test Set	A subset to test the trained model.	IBM cloudant.
6.	Data Preprocessing	Data processing includes the conversion of raw data to machine- redable form , flow of data through the CPU and memory to output devices, and formatting or transformation of output.	IBM Block Storage or Other Storage Service or Local File system.
7.	Image Data	Digital image data processing is mainly to input digital image data into a computer to complete the conversion of a continuous spatially distributed image model into a discreate digital model so that the computer can identify, process, and store the processing process of digital image.	IBM Weather API.

Table-2: Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	It is one of the most popular open source services for image processing . It's a free computer vision library that you can use to perform various image processing tasks: Image acquisition, Image compression and decompression.	IBM Cognos Analytics, Python.
2.	Security Implementations	The ever-growing number of digital sensors in the environment has led to an increase in the amount of digital data being generated	Encryptions& Decryptions.
3.	Scalable Architecture	Field naturalist can only use from anywhere to identify the birds, flowers, mammals and other species they see on their hikes, canoe trips and Other excursions.	Web Server :HTML, CSS ,JavaScript. Application Server: Python. Database Server: IBM Cloud.
4.	Availability	Rare species of birds, flowers, mammals.	IBM Cloud Hosting.
5.	Performance	Being able to identify the flora and fauna around us often leads to an interest in protecting wild spaces, and collecting and sharing information about the species we see on our travels is very useful for conservation groups like NCC.	ML algorithms.