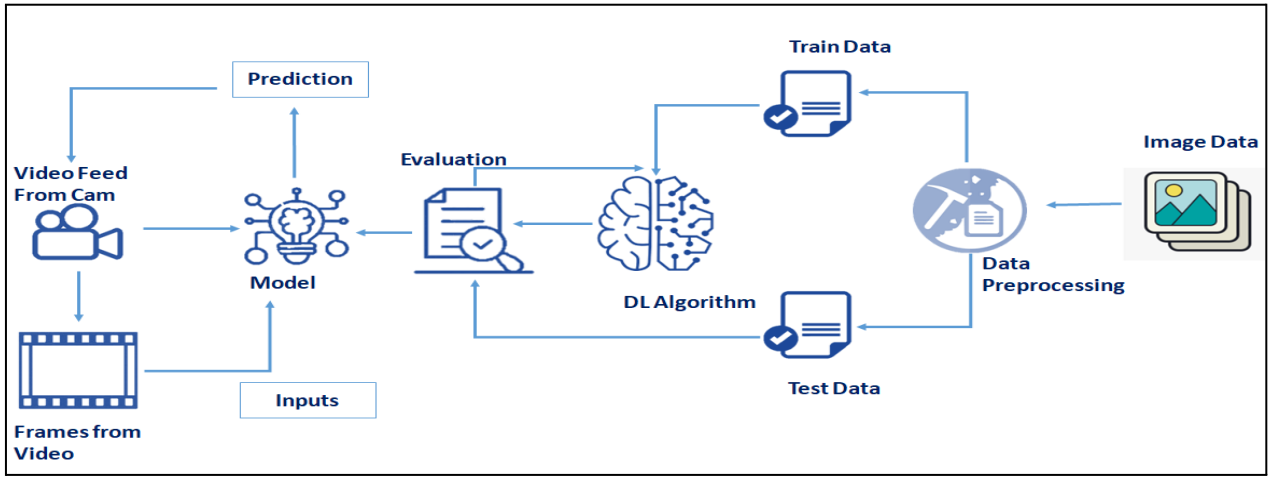
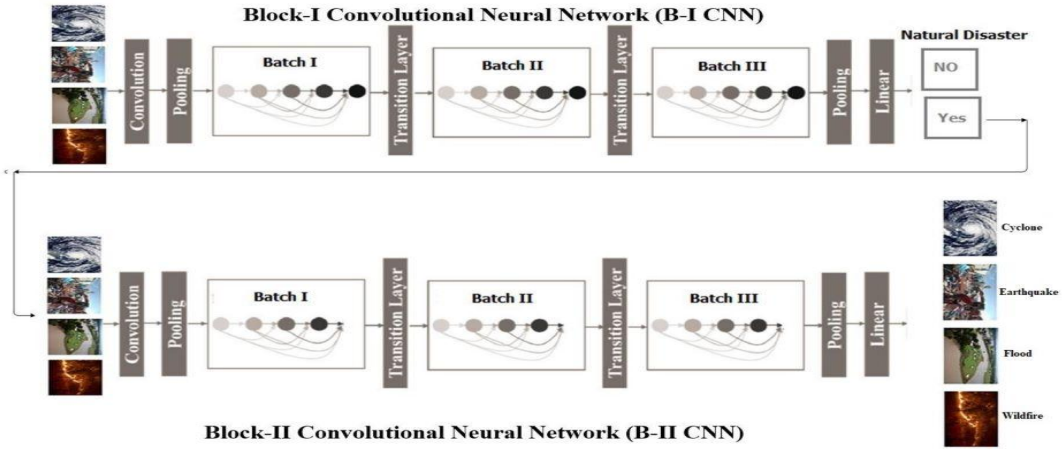
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	8 November 2022
Team ID	PNT2022TMID42615
Project Name	Natural Disaster Intensity Analysis and Classification using Artificial Intelligence
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2




Block-I Convolutional Neural Network (B-I CNN)
Convolution
Pooling
Batch I
Transition Layer
Batch II
Transition Layer
Batch III
Pooling
Linear
Natural Disaster
NO
Yes
Convolution
Pooling
Batch I
Transition Layer
Batch II
Transition Layer
Batch III
Pooling
Linear
Cyclone
Earthquake
Flood
Wildfire
Block-II Convolutional Neural Network (B-II CNN)

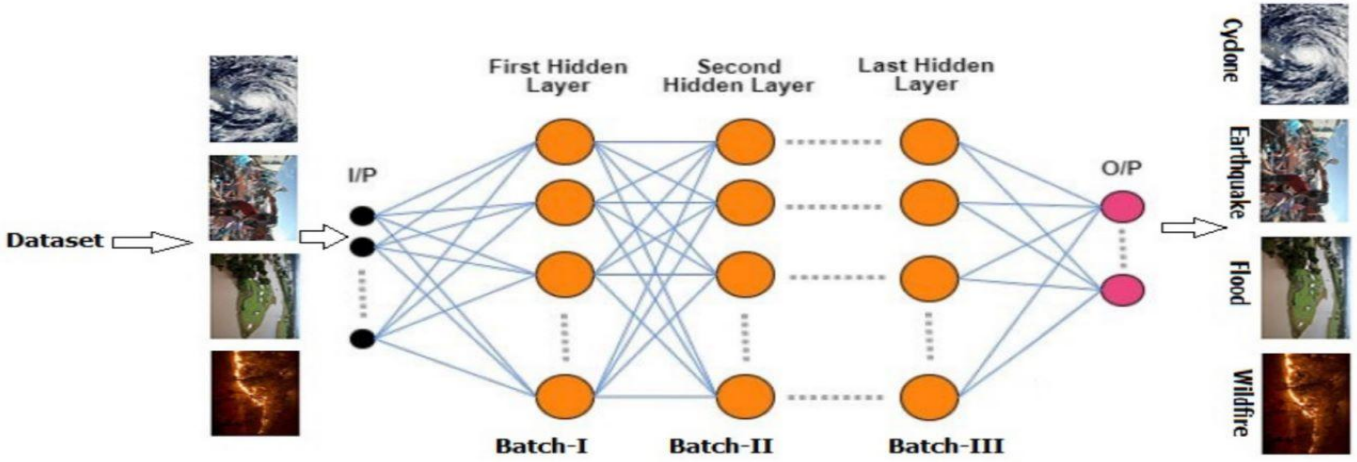

Dataset
I/P
First Hidden Layer
Second Hidden Layer
Last Hidden Layer
O/P
Batch-I
Batch-II
Batch-III
Cyclone
Earthquake
Flood
Wildfire

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	User interacts with the model during the course or to detect the occurence of a Natural Disaster	HTML, CSS, JavaScript, Python Flask
2.	Feature Engineering Pipeline	Algorithms can not make sense of raw data. We have to select, transform, combine data or prepare the data in such a way that the algorithm can find useful patterns.	Image processing, Pattern Exctraction, etc
3.	Model Training Kit	It learns patterns from the data. These learned patterns are used to perform particular tasks.	Multiclass Classification Model, Regression Model, etc
4.	Prediction Unit	This unit is used to predict the outcomes from the newly trained data to perform new tasks and solve new problems.	Decision Trees, Regression, Neural Networks
5.	Evaluation System	It monitors the performance of the algorithm while processing a data and during training.	Chi-square, Confusion Matrix, etc
6.	Interactive services	To interact with our model, give the model problems to solve. Usually this takes the form of an API, a user interface, or a command line interface	Application Programming Interface, etc
7.	Data Collection Unit	Data is only useful when it is accessible, so it needs to be stored ideally in a consistent structure and conveniently in one place.	IBM Cloud, SQL Server, etc
8.	Data Generation System	Every MachineLearning Application lives off data. That data has to come from somewhere. Usually it is generated by one of the core business functions.	Synthetic data generation
9.	Database Management System	An organized collection of data stored in database so that it can be easily accessed and managed.	MySQL, DynamoDB, etc
10.	IBM Cloud Services	Processed data stored in cloud services which can be accessed by the admin anywhere over the internet.	IBM Cloud, etc

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Template for software development that is designed by a social network of software developers. These frameworks are free for public use and provide a foundation for developing a software application.	Technology of Opensource framework
2.	Authentication	Authentication makes sure that the model is secured and only those with permission can have access.	Encryption and Decryption (OTP)
3.	Application interface	Uses makes use of a mobile application and web application to interact with the model.	Android and Web Application Development (PhoneGap, ReactNative, NativeScript)
4.	Availability(both online and offline work)	This section includes both online and offline work. A good and stable internet connection is required in order to explore the software perfectly. Offline work includes exploring the software later with the saved data.	Caching, Backend server
5.	Regular Updates	Software requires continuous process of improvements and updates. Maintain your server and make sure that your content is always up-to-date. It is essential to update the software regularly and enrich it with new features.	● Waterfall Approach ● Incremental Approach ● Spiral Approach
6.	Personalization	Software has features like flexible fonts, backgrounds, settings, colour themes, etc which make a software interface look good and functional	● Hubspot ● Proof