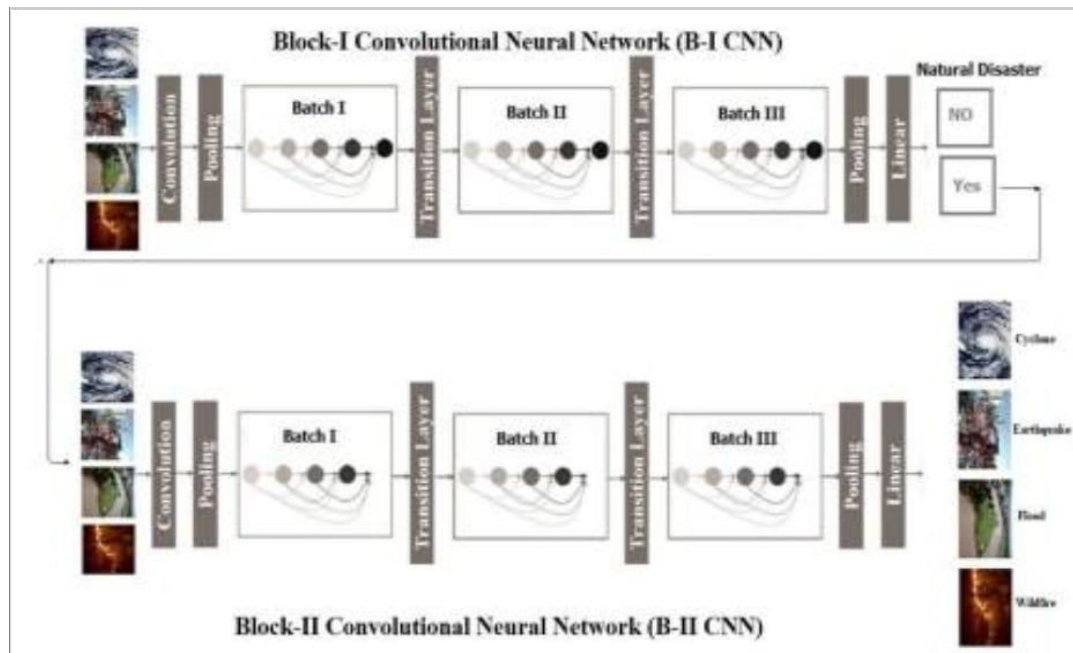


Project Design Phase-II Technology Stack (Architecture & Stack)

Date	20 November 2022
Team ID	PNT2022TMID51308
Project Name	Natural Disasters Intensity Analysis and Classification using Artificial Intelligence
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below :



Methodology Name	Outcomes	Weakness
Signal processing, image processing and statistical technique	More accurate prediction of natural disasters	Limited statistical parameters for prediction
Particle swarm optimization	Predict magnitude of earthquake	Work only for prediction on seismic dataset
Neural network	Predict magnitude of earthquake	Limited parameters used for prediction
Text mining, regular log mining technique	Detect earthquake with speed and accuracy on seismological data	Depends on public feedback to detect earthquake
Decision tree	Utilize some parameters to access the model for flood damage area detection	Parametric limitation for the detection of flood damaging regions
Artificial neural network, genetic algorithm and wavelet transfer technique	Sum-up good results as compared to the already existing techniques in the southeast Asia	Work for monsoon floods in June and September for specific regions in India for time series data
Support vector machine, naïve Bayes	Classify the natural disasters on various parameters	Limited for only early stages of natural disasters

Machine learning technique	Predict the land slidding with the accuracy rate of 75 to 95	More guidlines for model selection for predition large scale landslide
Neural network and back propagation	Prediction occur on past dataset	Dyanamic prediction is very much crucial for this system
Clustering for multivariable time series	Proposed a dynamic clustering approach for time series analysis and self-optimize organizing mapping technique	Dynamic time series data required for clustering process
Data mining technique	A real time desktop-based GUI system is designed to predict local storm	Use parallel computing process that takes various amounts of time to predict storm
Text mining technique	Develop a public platform to inform early tsunami prediction and information	Public feedback is compulsory for prediction process
Random forest, long short-term model	Evaluate the flood severity in terms of sensitivity, specificity and accuracy as 71.4%, 85.9%, 81.13%, respectively	Particle swarm optimization and other deep learning techniques can be used as a future work
A learning-based wildfire model	Proposed method can predict the short term spread of wildfire	Real time rate of wildfire spread is required for initial stage
Machine learning technique	The gradient boosting tree and CLIPER model used for cyclone prediction	Model is still weak to produce velocity sensitivities
Machine learning technique with numerical weather prediction	The prediction method is used for China that shows significant improvement as compared to the traditional methods	Still lack symmetric parameters for numerical computations
Artificial neural network	A fully connected neural network for segmentation which is used for	It works on multivariable parameters rather than the nixel hv

