PROJECT

**PHASE – 1**

EARTHQUAKE PREDICTION MODEL

USING PYTHON

ABSTRACT :

To identify a set of earthquake precursors for predicting earthquakes in different tectonic environments, a series of geo-scientific tools and methodologies based on rigorous assessment of multi-parameters have been developed by different researchers without complete success in earthquake prediction. The aim of earthquake forecasting involve multicomponents analysis in implementing probabilistic forecasts that resolves decision-making in a low-probability environment. The proposed work analytically examined some of the modern seismological earthquake algorithms used for analyzing seismo-electro-telluric-geodetic data used across the globe. The present study develops a fuzzy inference model by correlating evaluatory parameters by surveying analytical work of the data sets used,numerical experimentation done in analysis and the global application and success rate of 18 of the most viable earthquake prediction algorithms developed by mutually comparing different models in earthquake predictability experiments. Using qualitative analysis in probabilistic information, an efficient trust model has been implemented through fuzzy inferencing rules. Trust validity through information is an aggregation of consensus in earthquake occurrence given a set of past success rate and the methodologies involved in prediction.

DESIGN :

• Identify the parameters that best suits the problem requirement for trust based validation by analyzing the earthquake prediction algorithm for choice of the type of fuzzy system for inputs, states, and the outputs reducing its complexity and making it more comprehensible.

• Partition the universe of discourse or the interval spanned by each variable in the assumed parameter of relevance into a number of fuzzy subsets, assigning each a linguistic label

• Assign or determine a membership function for each fuzzy subset

• Assign the fuzzy relationships between the inputs’, states’ fuzzy subsets on the one hand and the outputs’ fuzzy subsets on the other hand, to form the rule base

• Definition of the set of heuristic fuzzy rules. (if– then rules).

• Choose appropriate scaling factors for the input and output variables in order to normalize the parameter variables to the [0, 1] or the [−1, 1] interval.

• Fuzzify the inputs to the controller

• Use fuzzy approximate reasoning to infer the output contributed from each rule • Aggregate the fuzzy outputs recommended by each rule

• Apply defuzzification to form a crisp output A single fuzzy if-then is of the form, if x is A then y is B where A and B are linguistic variables defined by fuzzy sets on the ranges X and Y, respectively. The ’if’ part of the rule is called the antecedent or premise and the ’then’ part of the rule is called consequent or conclusion.