**AI BASED WILDFIRE PREDICTION**

**Abstract:**

AI is a powerful decision making tool which makes use of decision maker to do intensive prediction and association tasks. Forest fire predictor plays a vital role for forest fire management. Timely prediction reduces the number of areas affected by this fire and thereby minimizes the cost of fire extinguishing and the damage caused in the Forest. This project presents an forest fire prediction mechanism based on Artificial Intelligence. The major challenge of an prediction system is that how to combine the different indicators in order to make a decision and to predict large number of unseen patterns from few known ones. The prediction must be accurate, consistent and computationally effective. Here we make use of novel forest fire risk prediction algorithm, which is based on Logistic regression.The algorithm works based on previous weather conditions in order to predict the fire hazard level of day. The data mining principle used is “Junk in Junk out” accurate weather prediction. Most of the prediction mechanisms bases its prediction on a continuous observation of a number of considerable factors. The aim of project is reduce the number of monitoring factors considered. The easily measureable features are chosen in order make prediction this will efficiently reduce the cost of the system.

**INDEX TERMS:** Forest fire, Artificial Intelligence, Logistic regression, Computationally Effective.

**Literature Survey:**

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| **S.NO** | **TITLE** | **YEAR** | **METHODOLOGY** | **BENEFITS** |
| 1. | A Neural Network Model for Wildfire Scale Prediction Using Meteorological Factors | 2019 | A backpropagation neural network (BPNN), a recurrent neural network (RNN), and long short term memory (LSTM) models are deployed. | Factors likesize of burned area and fire duration are used to estimate the scale of fire. |
| 2. | Distributed Event Detection in Wireless Sensor Networks for Forest Fires | 2013 | Various wireless sensors are used in this method. Sensors are placed at different hotspots an unusual event is detected. Information passed to base station. | Based on Information received at base station Intelligent decision were made. |
| 3. | Forest Fires Segmentation using Deep Convolutional Neural Networks | 2021 | To Overcome limitation like false detection of fire pixels. They propose three deep convolutional networks U-Net, U2-Net, and EfficientSeg. | This models shows good performance in terms of accuracy and proved reliability to segment fire pixels. |
| 4. | Decision Tree based System on Chip for Forest Fires Prediction | 2020 | This method based on Intellectual property core development for forest fire prediction.To speed up the process by decision locally at sensor node level. | Hardware implementation results of the decision tree based forest fires prediction system on chip show that the developed IP core. |
| 5 | Deep Learning Approach to Predict Forest Fires Using Meteorological  Measurements | 2021 | This project rely on Forest Fire Weather index Information. Long short term memory (LSTM) model used to deploy prediction of forest fire. | Since various metrics are used to evaluate the accuracy of proposed model. Results shows proposed models produce reasonable predictions. |