

Methodology

First, I made my own dataset from analysing various factors and conditions and got to know for the detection of a wildfire is primarily dependent upon 3 factors

Oxygen Level: For any fire to take place, high oxygen content is required. So higher the oxygen more is the probability of a wildfire taking place

Temperature: Obviously for a fire to take place, heat is favourable. Hence high temperature increases the probability of fire in any region.

Humidity: Obviously Humid weather is unfavourable for a fire, whereas a dry weather is. Therefore, higher the humidity, lower the probability of a fire taking place.

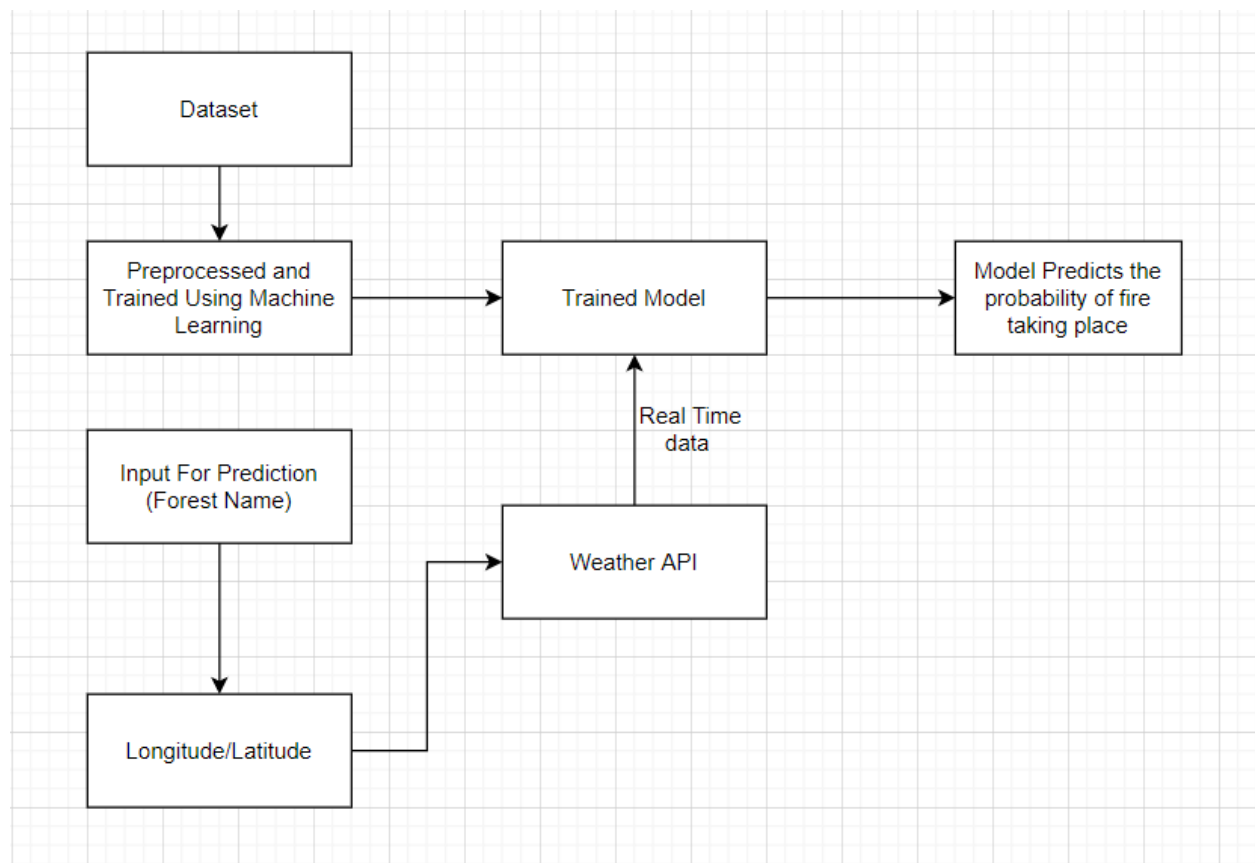


Fig1. Proposed System

In our prediction system, the user provides the location of a forest and the country where it's located. This user input is used to fetch the data of temperature, humidity, and wind speed from a Weather API after processing it through a geolocator. This data is used in our prediction model to predict the probability of a potential forest fire. The chosen parameters are found to be highly correlated with a history of forest fire occurrences. We have built a predictor function that takes a

set of weather condition data as a JSON object and returns a prediction generated by the trained logistic regression model. Now we can pass the predictor a set of values that represent a forest fire that starts at a given location under a given set of weather conditions and use it to predict the burning probability of said forest fire. Since we obtain the highest accuracy of Logistic Regression, we opt that model.

Dependencies in our product include - DarkSkyAPI for Weather Data, Geopy for Geocoding the location and Sklearn for Machine Learning. Other dependencies include Numpy, Pandas, Flask, wtforms, Bootstrap etc.

When this concept is deployed, we created a web application that simply takes 2 inputs from the user to get the forest fire probability.