

Master of Computer Application (MCA)

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SYNOPSIS FOR Forest Fire Prediction Using Machine Learning

ABSTRACT :-

Wildfire forecasting is an important part of wildfire management. Resource allocation plays an important role in mitigation and recovery. In this article, wildfire forecasts are explained and analyzed based on intelligence. A forest fire risk prediction algorithm based on support vector machine is proposed. The algorithm relies on past weather to predict the day's danger level. Using data from kaggle and algorithm used in this project is Logistic Regression and it is a supervised machine learning algorithm that accomplishes binary classification task by predicting the probability of an outcome.

INTRODUCTION :-

Forest fire prediction refers to the process of using colorful ways and tools to read the liability and implicit inflexibility of a fire outbreak in a forested area. Forest fires are caused by a combination of factors similar as dry rainfall conditions, **high temperatures, Humidity**, and mortal conditioning similar as conflagrations, cigarettes, and fireworks.

There are several styles used in forest fire prediction, including statistical analysis, machine literacy algorithms, and remote seeing ways. These styles help to gather and dissect data on rainfall conditions, energy humidity content, Oxygen, and other factors that contribute to the liability of a fire outbreak. Forest fire prediction models can be used to give early warning systems to warn authorities and residents of implicit fire peril.

These models also help to identify areas that are at high threat of backfires and enable authorities to take necessary preventives, similar as enforcing fire bans and evacuation orders, to help or minimize the impact of forest fires. Overall, forest fire prediction plays a critical part in precluding and mollifying the damage caused by backfires.

By furnishing accurate and timely information, it allows authorities to take visionary measures to reduce the threat of fire outbreaks and cover both mortal and natural coffers. In future predicting forest fire is expected to reduce the impact of fire. In this paper we are implementing the forest fire prediction system which predicts the probability of catching fire using meteorological parameters like **temperature, Oxygen, Humidity**. we used Random Forest regression algorithm to implement this module.

Objective:-

Forest fires are a significant environmental and societal issue, causing expansive damage to natural coffers, wildlife, and mortal lives. Beforehand discovery and prediction of Forest fires are pivotal in mollifying their impact and reducing their spread. timber fire prediction involves assaying colorful factors similar as rainfall patterns, foliage humidity content, and literal fire data to read the liability of a fire outbreak in a particular area.

Forest fire prediction model uses Random Forest regression algorithm. Random forest regression algorithm is bagging technique. Random forest regressor algorithm is the supervised learning algorithm it uses labelled dataset to train algorithm. Random forest makes use of Decision Tree Algorithm.

Problem Definition:-

Forest fires cause lots of damage, some of them are :- loss of wildlife habitat, extinction of plants and animals, destroys the nutrient rich top soil, reduction in forest cover, loss of valuable timber resources, ozone layer depletion, loss of livelihood for tribal people and poor people, increase in global warming.

Prerequisites :

- Basic HTML
- Basic CSS
- Basic JavaScript
- Basic J Query

Front-end Part

1. * HTML
2. * CSS(Materialize)
3. * JavaScript(Materialize)
4. *JQuery

Back-end

1. * Python(Machine Learning & flask)

What will we learn? By building this app, we'll learn some stuff like,

- - The developing web application using python.
 - The use of machine learning.

Tools/Platform used: Software Requirement: OS: Windows

IDE: Visual Studio Code

1. Language: HTML
2. * CSS
3. * JavaScript
4. *JQuery
5. *Python

Hardware Components:

- - Processor – Dual Core
 - Hard Disk- 1 TB
 - Memory- 6GB RAM
 - Keyboard-Any Standard

References:-

Website Link - <https://www.w3schools.com/html/>

<http://www.javatpoint.com/css-tutorial>

<https://www.w3schools.com/python/>

<https://www.kaggle.com/>