**Machine Learning Techniques for Estimating Forest Fire Risk and Severity**

**Abstract:**

Forest fire prediction is the use of different methods and tools to estimate the risk and severity of a fire in a forest area. Forest fires are caused by many factors such as dry weather, high heat, and human activities like fires, cigarettes, and fireworks. Some methods used in forest fire prediction are statistical analysis, machine learning algorithms, and remote sensing techniques. These methods help to collect and analyze data on weather, fuel moisture, terrain, and other factors that affect the risk of a fire.

Forest fire prediction models can be used to provide early warning systems to alert authorities and residents of potential fire danger. These models also help to identify areas that are at high risk of fires and enable authorities to take preventive actions, such as enforcing fire bans and evacuation orders, to reduce or minimize the impact of forest fires. Forest fire prediction is very important in preventing and mitigating the damage caused by fires.

By providing accurate and timely information, it allows authorities to take proactive measures to lower the risk of fire outbreaks and protect both human and natural resources. In the future, predicting forest fire is expected to reduce the impact of fire. In this paper, we are developing a forest fire prediction system that predicts the probability of catching fire using meteorological parameters like location, temperature, and more. We used Random Forest regression algorithm to implement this system.

**Keywords:**

Machine learning, meteorological parameters, Random Forest regression algorithm, precautions.