# A PROJECT REPORT

**ON**

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

*Is submitted to*

**Jawaharlal Nehru Technological University, Anantapur**

*In partial fulfillment of the requirements*

*for the award of the degree of*

**BACHELOR OF TECHNOLOGY**

*in*

# COMPUTER SCIENCE AND ENGINEERING

***During the academic year 2023-2024***

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### **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**SRI VENKATESWARA INSTITUTE OF TECHNOLOGY**

(Affiliated to JNTUA, ANANTAPURAMU, Approved by A.I.C.T.E. New Delhi)

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**2023-2024**



**CERTIFICATE**

This is to certify that project work entitled “MACHINE LEARNING TECHNIQUES FOR ESTIMATING FOREST FIRE RISK AND SEVERITY” is the bonafide work done by **PALYAM SURESH(209F1A0532), DEVARAPALLI CHARAN KUMAR REDDY (209F1A0513), BEEDALA VINOD KUMAR REDDY(209F1A0502), H A VINAY(209F1A0517), VEGINATI KOTESWARA RAO (209F1A0553).** Under our supervision and guidance, in partial fulfillment of the requirements for the award of degree of **“BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE ANDENGINEERING”** from **Jawaharlal Nehru Technological University Anantapur,** during the period 2023-2024.

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# 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.

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***M*achine *L*earning *T*echniques for *E*stimating *F*orest *F*ire *R*isk and *S*everity**