Literature Survey

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S.No	TITLE	PROPOSED WORK	TOOLS USED/ ALGORITHM	TECHNOLOGY	ADVANTAGES/ DISADVANTAGES
1	Characteristics of Forest Fires and their Impact on the Environment.	This paper provides detailed knowledge on the characteristics of different forest types and their environment, their ecosystems and food-chains, and technical information on the properties of forest fires and their effects on the environment.	• Bayesian network model (BN) • BehavePlus V6 • RedAPP • CanFIRE • Crown Fire irritation and Spread System	• Machine learning • Active Fire Monitoring Image processing algorithm • Agglomerative hierarchical clustering algorithm • Neural networks (NN) • SVM	80–90% of these forest fires are caused by human activities, a smaller number is caused by extreme weather phenomena, mainly by lightning.
2	Early Forest Fire Detection and Verification Using Optical Smoke, Gas and Microwave Sensors.	To reduce false alarms in a remote controlled unmanned aerial vehicle (UAV) equipped with gas sensors	• Semiconductor gas sensors (GTE GSME) • H2-Sensor • CXHX-Sensor • Hekatron ASD535	• Remote sensing technology • Deep Learning Technique • Image processing • WSN • Machine learning • Deep learning.	The main focus has to be on early smoke detection because large and high-intensity forest fires are widely uncontrollable and cause very high risks.

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3	Wireless Sensor Network for Forest Fire Detection.	The extent of the forest to be one of the problems encountered in the forest condition monitoring. To overcome the problems of forest extent, designed a system of forest fire detection system by adopting the Wireless Sensor Network (WSN) using multiple sensor nodes.	• Machine learning regression model • K-means technique • Support vector machine (SVM) classification	• Machine learning application • Logistic regression	Temperature measurements, the levels of methane, gasoline, CO and CO_2 can be used as a leading indicator for the early detection of forest fires
4	An Adaptive LoRaWAN MAC Protocol for Event Detection Applications.	This work makes use of the Long-Range Wide Area Network (LoRaWAN) protocol, which is capable to connect low-power devices distributed on large geographical areas.	• Automata-based hybrid MAC model • TDMA • ALOHA • Slotted ALOHA • MAC protocol	• Reinforcement learning • Supervised machine learning • Learning-Automata Mechanism	To limit the damage caused by events such as forest fires and to control their startand spread via IoT-capable sensors, in this work, a learning-automata-based hybrid MACmodel for LoRa networks is proposed.

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5	LoRaWAN communication protocol: The new era of IoT.	This paper addresses the scalability problem of the LoRa emphasizing the initial LoRa network deployment.	• M2M (Machine-to-Machine) communications • Z-Wave or cellular GSM network • CupCarbon-WSN Simulator	• ZigBee protocol • Bluetooth protocol • SigFox communication protocols	LoRaWAN uses the unlicensed ISM (Industrial, Scientific and Medical) frequency and the limitation is enforced by the duty cycle parameter that is regulated depending on the different areas.
6	Long Range (LoRa) digital wireless communication technology. - IMST iC880A LoRaWAN concentrator	The iC880A is able to receive on different frequency channels at the same time and is able to demodulate the LoRa signal without knowledge of the used spreading factor of the sending node.	• IoT and M2M applications • Log Likelihood Ratio (LLR) Algorithm • Weight factor distribution algorithm	• ZigBee protocol • GSM protocol • Wireless Sensors • Wireless Alarm and Security Systems	In this paper we have briefly presented two new methods for early forest fire detection, including part of their characteristics and main components

THANK YOU