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| PAPER TITLE | AUTHOR-PUBLICATION | DRAWBACKS | PROPOSED METHODOLOGIES | OUTCOMES | FUTURE SCOPE |
| 1. A SURVEY ON FOREST FIRE DETECTION | Ms.Tamil Mathi PG Student Department of Computer Science and Engineering, Kumaraguru College of Technology, Coimbatore, India  Dr. L. Latha ASP Department of Computer Science and Engineering, Kumaraguru College of Technology, Coimbatore, India | In image processing the inputs for the fire detection may be an image or a video but the input as a video is quite complex process | Different fire detection techn  iques have been proposed for safety and protection of the people and environment.   * Wavelet based smoke detection-smoke detection in video sequences * Covariance method - flame detection. * Neural Network -produces accurate result as it uses temperature, smoke density and CO concentration. | The techniques such as Wavelet decomposition, spatial and temporal analysis, Gaussian Mixture Model, Multi-Feature fusion detect fire in an accurate manner | By these approaches we cannot completely protect the forest from fire but we reduce the level of damage. Perception Neural Network along with Multi Threshold algorithm classified image pixels of cloud, land, smoke, and background and produced accurate result of smoke |
| 1. A Literature Study on Image Processing for Forest Fire Detection | PRIYADARSHINI M HANAMARADDI M.Tech-Student Computer Science and Engineering, R V College of Engineering, Bangalore, Karnataka, India. | **It is very much time-consuming**. It is very much costly depending on the particular system. Qualified persons can be used. | The proposed system uses YCbCr colour spaces. Because YCbCr colour space separates luminance from chrominance, hence it is robust to changing illumination than other colour spaces like RGB and rgb (normalized RGB). The proposed method not only separates fire flame pixels but also separates high temperature fire centre pixels by taking in to account of statistical parameters of fire image in YCbCr colour space like mean and standard deviation | The proposed system achieves 99.4% fire detection rate and 12% false alarm rate. The proposed method was compared with other methods in the literature and demonstrates superior performance in terms of higher fire detection rate and less false alarm rate. | Two rules are used for segmenting the fire flame region and two rules are used for segmenting the high temperature fire centre region. |
| 1. FOREST FIRE DETECTION USING MACHINE LEARNING | Pragati , Sejal Shambhuwani , Piyusha Umbrajkar Department of Electronics and Telecommunication, MITCOE, Pune, Maharashtra, India | The limitations of these methods are (i) they are based on shallow machine learning models that require the selection of useful features as the input, and (ii) they do not consider the imbalanced problem in the historical data, e.g., the number of large-scale forest fire is much less than that of small-scale ones | In this paper, we propose a decision tree machine learning approach for detecting events | From this project we came to the conclusion that decision tree has a remarkable accuracy of 99% in predicting fires in forest areas. This reduces the chances of false alarm to a great extent. | This project carries a broad prospective for future. Moreover it is a need for great research to be done in this field in the coming years. In future, our project can be extended towards finding an efficient way of localization of the fire, gravity of fire, direction of spread, area burnt and many more. In our experiment, the process of simulation of forest fire was done by burning the dried leaves directly. We could come up with ways to make this simulation more close to actual forest fires. |
| 4.Forest Fire Detection and Prediction from image processing using RCNN | Abhay Chopde , Ansh Magon , Shreyas Bhatkar | * Training is a multi-stage pipeline. * Training is expensive in space and time. * Test-time detection is slow. | . This paper proposes a large-scale monitoring system and deep learning-based forest fire detection model that can detect forest fires from video frames captured by UAV drones. The proposed CNN model successfully detects forest fires with 97.29% accuracy. | The classification type of the model is binary. The model was able to differentiate between images with and without fire with an accuracy of 97.29%. The accuracy of the Bluetooth and RTH sensors depend entirely on the calibration of those respective devices. The frame quality also depends upon the quality of the input image provided. 5MP camera used for taking real-time input in case of rising threat levels. |  |
| 5..Forest fire detection system using wireless sensor networks and machine learning | Udaya Dampage, Lumini Bandaranayake, RidmaWanasinghe, Kishanga Kottahachchi & Bathiya Jayasanka | It can not be used for high speed communication as it is designed for low speed applications.  It is expensive to build such network and hence can not be affordable by all. | This paper proposes a system and methodology that can be used to detect forest fires at the initial stage using a wireless sensor network. a machine learning regression model is proposed | To obtain a more accurate outcome within the lowest latency, the analysis takes place within both the sensor node and at the base station | To fit any weather condition, climatic condition, or area, a threshold ratio is introduced for analysis within the sensor node. In the case of node deployment, it can be mounted at any place in the forest even if there is no preinstalled network connectivity, as the transceiver module is based on dedicated built-in network infrastructure. |