

TEAM ID : PNT2022TMID50348

EMERGING METHODS FOR EARLY DETECTION OF FOREST FIRES

Ideation Phase

IDEATION :

List of ideas:-

- To save past forest fire data for future prediction.
- Frames will be fed through neural net. On positive detection of fire metrics are extracted. Ignore smoke for MVP. Try various architectures & parameters to establish a 'good' baseline model.
- Yolo present both options, yolo4 lite for mobile and yolo5 for GPU.
- Alternatively there is mobilenet and tf-object-detection-api.
- Custom Object detection using YOLOv3 on the cloud. It is trained to detect Fire in a given frame. It can be largely used for Wildfires, fire accidents, etc.
- dataset collected by scraping Google images (provides link to dataset with 1315 fire images), binary Fire/Non-fire classification with tf2 & keras sequential CNN, achieve 92% accuracy, concludes that better datasets are required
- Aerial Imagery dataset for fire detection: classification and segmentation using Unmanned Aerial Vehicle (UAV) - binary classifier
- Convolutional neural network model based on the architecture of the Faster-RCNN for wildfire smoke detection
- Training fast.ai model and deploying via gradio app
- perform forest fire recognition on UAV using ResNet50 and EfficientNetB7

Top 3 Ideas:-

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