Group No: 20

Project Title: Fire and Smoke Detection using Images

Group Members:

Sarthak Dave AU2244001

Yukta Patel AU2244002

Saiyam Sanghvi AU2244003

Dhaval Makwana AU2244004

Weekly Progress Report

➢ **Tasks Performed in the week:**

This week, we focused on data preprocessing for our deep learning project. The dataset we're using is a collection of images of Fire, Smoke, Non-fire images, which We plan to use to train a convolutional neural network (CNN) for detection.

For splitting the data set into train and test dataset we merged the dataset of fire and non fire images.

We began by importing the necessary libraries such as Keras, NumPy, and OpenCV. Then, We loaded the dataset and split it into training, validation, and test sets using Keras' train_test_split() function. We also resized all the images to a standard size of 128x128 pixels.

For labeling our class we used one hot encoding. We compute our class weight to weight Fire image more than Non-Fire image during the Gradient update.

➢ **Outcome of the task performed:**

This week we performed a task for data preprocessing which can be helpful for our Deep neural network. For We gave different weights to the images so the model can rank them and differentiate them by the weights they carry. Data exploration and preprocessing is very important in deep learning we cleaned the data, sampled it, and normalized it.

➢ **Tasks to be performed in the upcoming week:**

- Next week we'll train the model with the preprocessed data.