PROJECT DEVELOPMENT PHASE

DELIVERY OF SPRINT-1

Date	09 November 2022
Team ID	PNT2022TMID33568
Project Name	Emerging methods for the early detection of forest fires

Executable Program

```
from tensorflow.keras.preprocessing.image import ImageDataGenerator
train_datagen=ImageDataGenerator(rescale=1./255,shear_range=0.2,rotation_range=180,
z oom_range=0.2,horizontal_flip=True)
test_datagen=ImageDataGenerator(rescale=1./255)
x_train=train_datagen.flow_from_directory(r'C:\Users\USER\Documents\Sem7\Naalaiyathir
an\Dataset\Dataset\train_set', target_size=(128,128),
                                          batch_size=32,
                                          class_mode='bi
                                          nary')
x_test=train_datagen.flow_from_directory(r'C:\Users\USER\Documents\Sem7\Naalaiyathira
n\Dataset\Dataset\test_set', target_size=(128,128),
                                          batch_size=32,
                                          class_mode='bi
                                          nary')
x_train.class_indices
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers
import Dense
from tensorflow.keras.layers import Convolution2D,MaxPooling2D,
Flatten import warnings warnings.filterwarnings('ignore')
model=Sequential()
model.add(MaxPooling2D(pool_size=(2,2)))
model.add(Flatten())
```

model.summary()

```
In [1]: from tensorflow.keras.preprocessing.image import ImageDataGenerator

C:\anaconda\lib\site-packages\scipy\__init__.py:146: UserWarning: A NumPy version >=1.16.5 and <1.23.0 is required for this ver
sion of SciPy (detected version 1.23.3
  warnings.warn(f"A NumPy version >={np_minversion} and <{np_maxversion}"

In [2]: train_datagen=ImageDataGenerator(rescale=1./255,shear_range=0.2,rotation_range=180,zoom_range=0.2,horizontal_flip=True)

In [3]: test_datagen=ImageDataGenerator(rescale=1./255)

In [5]: x_train=train_datagen.flow_from_directory(r'C:\Users\USER\Documents\Sem7\Naalaiyathiran\Dataset\Dataset\train_set', target_size=(
                                                  batch_size=32,
                                                  class_mode='binary')

Found 436 images belonging to 2 classes.

In [6]: x_test=train_datagen.flow_from_directory(r'C:\Users\USER\Documents\Sem7\Naalaiyathiran\Dataset\Dataset\test_set', target_size=(12
                                                 batch_size=32,
                                                 class_mode='binary')

Found 121 images belonging to 2 classes.

In [7]: x_train.class_indices

Out[7]: {'forest': 0, 'with fire': 1}

In [8]: from tensorflow.keras.models import Sequential
```

```
In [8]: from tensorflow.keras.models import Sequential
        from tensorflow.keras.layers import Dense

In [9]: from tensorflow.keras.layers import Convolution2D,MaxPooling2D, Flatten

In [10]: import warnings
         warnings.filterwarnings('ignore')

In [11]: model=Sequential()

In [13]: model.add(MaxPooling2D(pool_size=(2,2)))

In [14]: model.add(Flatten())

In [70]: model.summary()

         Model: "sequential_3"
         _________________________________________________________________
          Layer (type)                 Output Shape              Param #
         =================================================================
          conv2d_4 (Conv2D)            (None, 126, 126, 32)      896

          max_pooling2d_4 (MaxPooling  (None, 63, 63, 32)        0
          2D)

          flatten_4 (Flatten)          (None, 127008)            0

         =================================================================
         Total params: 896
```