PROJECT DEVOLPMENT PHASE

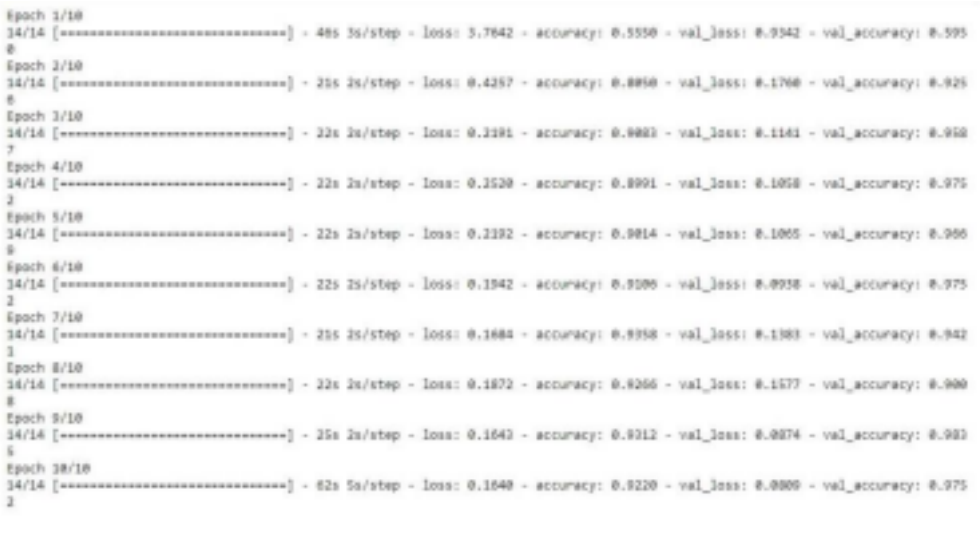
DELIVERY OF SPRINT-2

Date	09 November 2022
Team ID	PNT2022TMID33575
Project Name	Emerging methods for the early detection of forest fires

Executable ProgramModel

Building:

```
model.add(Dense(150,activation='relu'))
model.add(Dense(1,activation='sigmoid'))
model.compile(loss='binary_crossentropy',optimizer='adam',metrics=['accuracy'
] ) len(x_train)
len(x_test)
model.fit_generator(x_train,steps_per_epoch=len(x_train),epochs=10,
validation_data=x_test,validation_steps=len(x_test)) import tensorflow as tf
from keras.models import load_model from tensorflow.keras.preprocessing
import imageimport numpy as np import cv2 model.save('forestfire.h5')
model=load_model('forestfire.h5')testImg =
image.load_img(r'C:\Users\win\Desktop\Project_NT\test_set\forest\_101542074
_ g ettyimages_956391468.jpg')
testImgarrayImg = image.img_to_array(testImg)
arrayImg
x = np.expand_dims(arrayImg , axis =
0)X images = np.vstack([x])
pred=model.predict(images) Pred
x_train.class_indicesif (pred[0] > 0.5):
print("forest with fire")else: print("forest
without fire")
```



```
[[217.,  226.,  179.],
 [ 70.,   87.,   38.],
 [ 48.,   58.,    8.],
 ...,
 [ 16.,   72.,    8.],
 [  1.,   39.,    8.],
 [221.,  228.,  212.]]], dtype=float32)
```

In [25]:
```
images = np.vstack([x])
```

In [26]:
```
pred=model.predict(images)
pred
```

```
1/1 [==============================] - 1s 1s/step
```

Out[26]:
```
array([[0.]], dtype=float32)
```

In [27]:
```
x_train.class_indices
```

Out[27]:
```
{'forest': 0, 'with fire': 1}
```

In [28]:
```
if (pred[0] > 0.5):
    print("forest with fire")
else:
    print("forest without fire")
```

```
forest without fire
```