PROJECT DEVELOPMENT PHASE
SPRINT-III

MODEL BUILDING

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Date	15 November 2022
Team ID	PNT2022TMID48728
Project Name	Emerging Methods for Early Detection of Forest Fires
MaximumMarks	4 Marks

Import model building libraries #import keras libraries import numpy as np import tensorflow from tensorflow.keras.models import Sequential from tensorflow.keras import layers from keras.layers import Dense from keras.layers import Conv2D from keras.layers import MaxPooling2D,Dropout from keras.layers import Flatten

Initializing the model

model=Sequential() ***Add***

CNN Layer

model.add(Convolution2D(32,(3,3),input_shape=(128,128,3) ,activation ='relu'))

#add maxpooling layer

model.add(MaxPooling2D(pool_size=(2,2)))

#add flatten layer model.add(Flatten())

Add Hidden Layer

#add hidden layer

model.add(Dense(units=128,activation='relu'))

#add output layer

model.add(Dense(units=46,activation='softmax')

Configure the learning process

model.compile(loss='binary_crossentropy',optimizer="adam",metrics=["accuracy"])

Train the model

model.fit(x_train,epochs=10,steps_per_epochs=len((x_train)

from google.colab import drive drive.mount('/content/drive')

Save The Model

model.save("forestwithfire.h5")

Predictions

```
# import load_model from keras.model from
keras.models import load_model # import image
class from keras from
tensorflow.keras.preprocessing import image

# import numpy
import numpy as np
# import cv2 import
cv2

#load the saved model model =
load_model("forestwithfire.h5")

#give any random image path

img=image.load_img(r'/content/drive/MyDrive/DataCollection/training/Forest with fire/with fire (10).jpg') x = image.img_to_array(img)
res = cv2.resize(x,dsize=(128,128),interpolation=cv2.INTER_CUBIC)


#expand the image shape
x=np.expand_dims(res,axis=0)
pred= model.predict(x_train)
pred
```