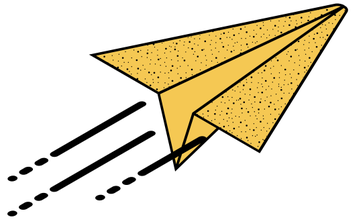
Presented by

- Yash Agarwal - 2020114005
- Syed Imami - 2020113012



ORAL CANCER DETECTION

classification model for detecting oral cancer cells from multicancer dataset

TABLE OF CONTENTS

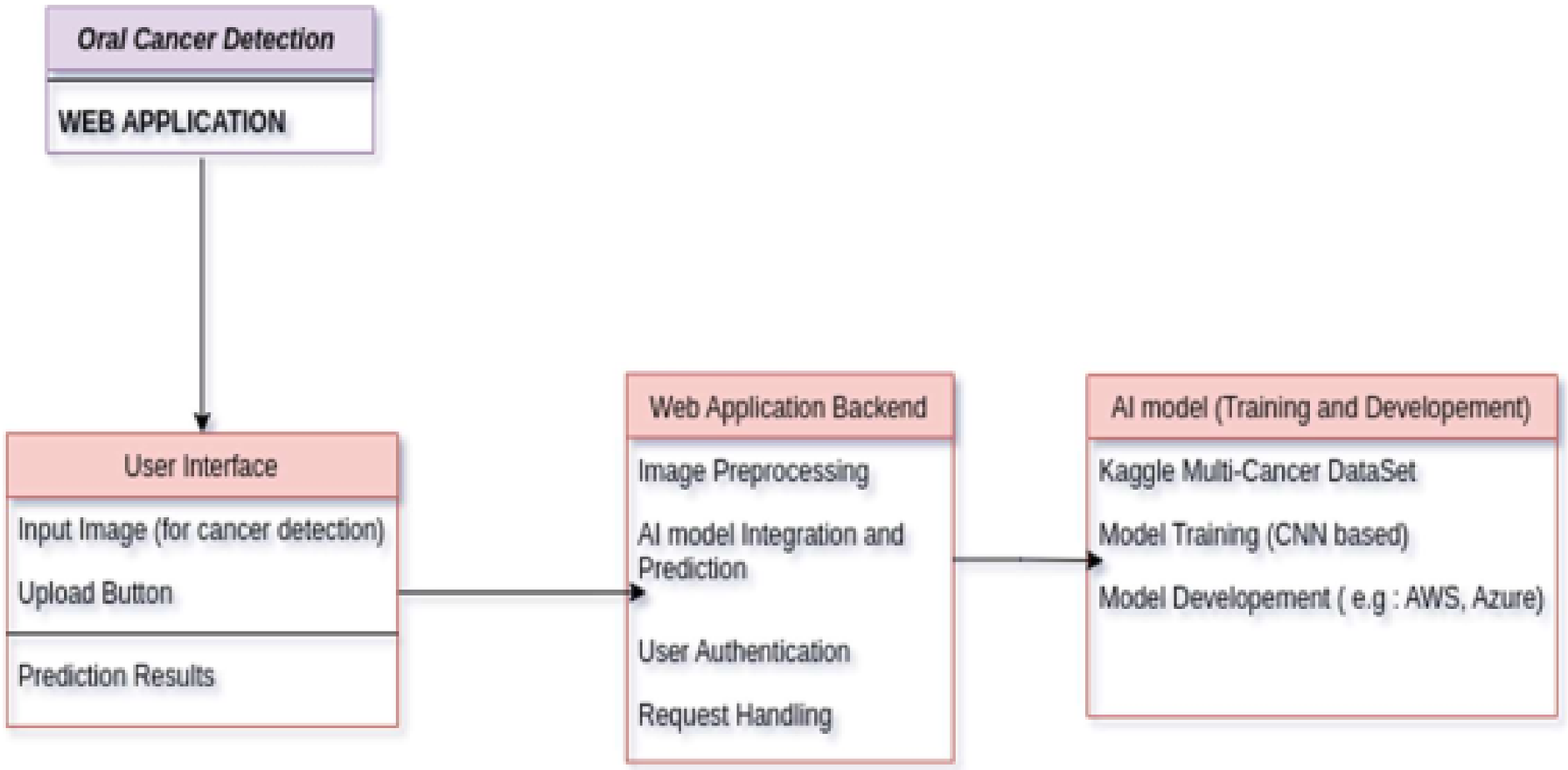
INTRODUCTION

- Web application to predict oral cancer
- Goal : To provide an responsive web application for the users to detect cancer
- Web app uses an oral cancer classification model
- Model - made using neural networks on multi cancer data set
- classification of 2 classes (oral scc and oral normal) from the 24 classes
- Dataset contains 26 classes of cancer subtypes

REQUIREMENTS

- data collection and preperation :
  - all the image datas are collected and preprocessed
  - images are compressed and made ready for the input in the model
- AI model training : resnet50 based image classifier
- model evaluation : 20% of dataset is used for model evaluation
- web app developement :
  - Web application is developed for user to input image
  - Output result of classification is generated
- Deployement :
  - web application deployed on IIITH network

PROCESS - CONTEXT DIAGRAM



DATASET

- **9.6 GB dataset with 1300000 images**

  26 subtypes of data containing 2 subtypes of oral cancer including oral scc and oral normal with 5001 images each

  link to data set - link

CODE

```
base_model_resnet = ResNet50(weights='imagenet', include_top=False, input_shape=(224, 224, 3))
for layer in base_model_resnet.layers:
    layer.trainable = False
x = base_model_resnet.output
x = GlobalAveragePooling2D()(x)
x = Dense(256, activation='relu')(x)
predictions = Dense(26    , activation='softmax')(x)
# predictions = Dense(5    )(x)
model = Model(inputs=base_model_resnet.input, outputs=predictions)
model.compile(optimizer='adam', loss='categorical_crossentropy', metrics=['accuracy'])
```

```
history = model.fit(train_ds,verbose = 1,epochs = 5,batch_size = 32,validation_data = val_ds,callbacks = callback)
```

```
Epoch 1/5
3251/3251 [==============================] - 2321s 713ms/step - loss: 0.2257 - accuracy: 0.9138 - val_loss: 0.1658 - val_accuracy: 0.9375 - lr: 0.0010
Epoch 2/5
3251/3251 [==============================] - 2288s 704ms/step - loss: 0.1022 - accuracy: 0.9611 - val_loss: 0.0812 - val_accuracy: 0.9682 - lr: 0.0010
Epoch 3/5
3251/3251 [==============================] - 2309s 710ms/step - loss: 0.0675 - accuracy: 0.9751 - val_loss: 0.0714 - val_accuracy: 0.9740 - lr: 0.0010
Epoch 4/5
3251/3251 [==============================] - 2368s 728ms/step - loss: 0.0541 - accuracy: 0.9806 - val_loss: 0.0774 - val_accuracy: 0.9750 - lr: 0.0010
Epoch 5/5
```

MODEL

- **Preprocessing**

Images are preprocessed and size reduction of the images is done

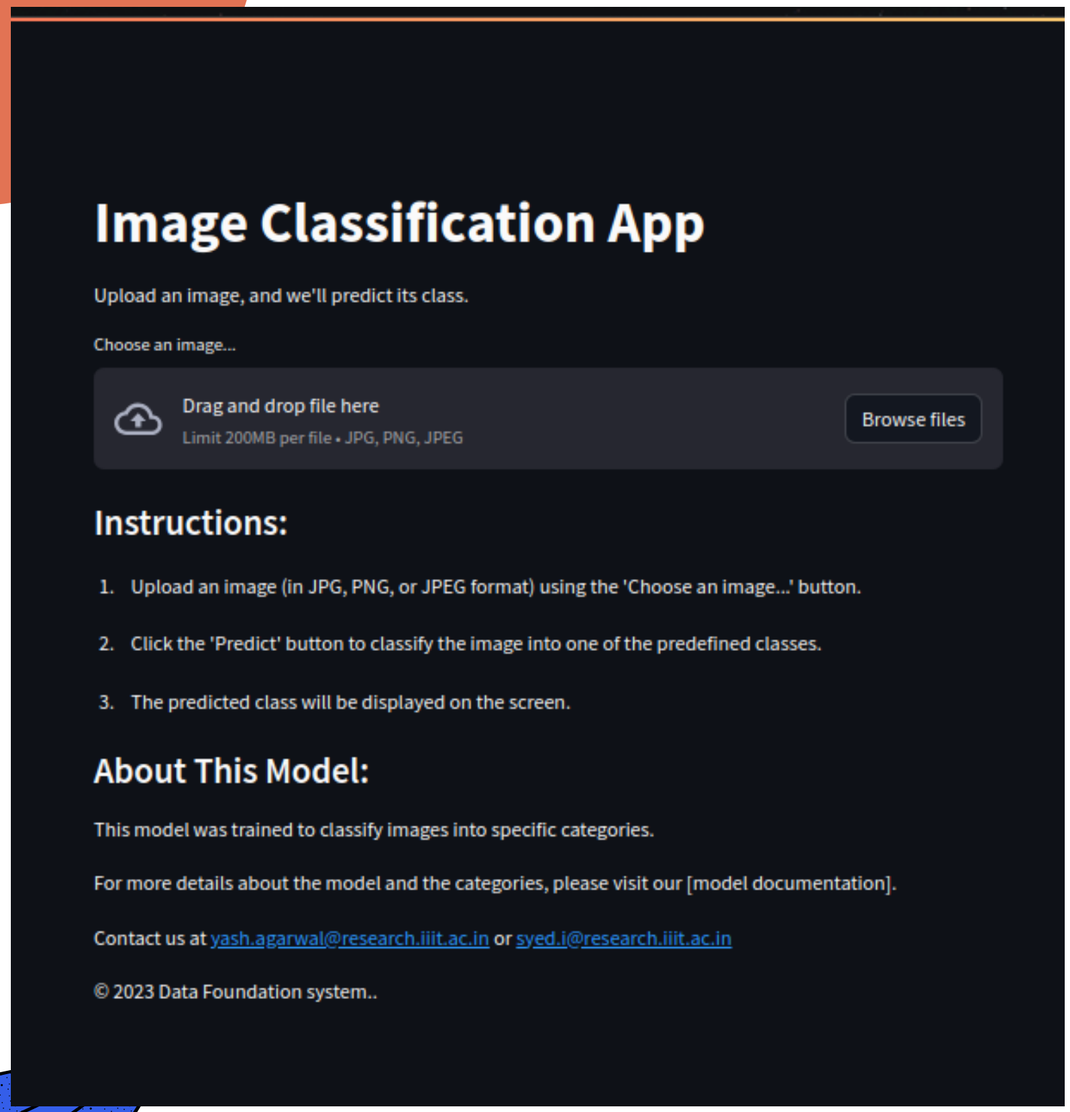
- **Classifier**

Using RESNET classifier pretrained on Imagenet

- **shuffle and split**

Dataset is shuffled to avoid descrepancies
train : test split = 80:20

WEBAPP

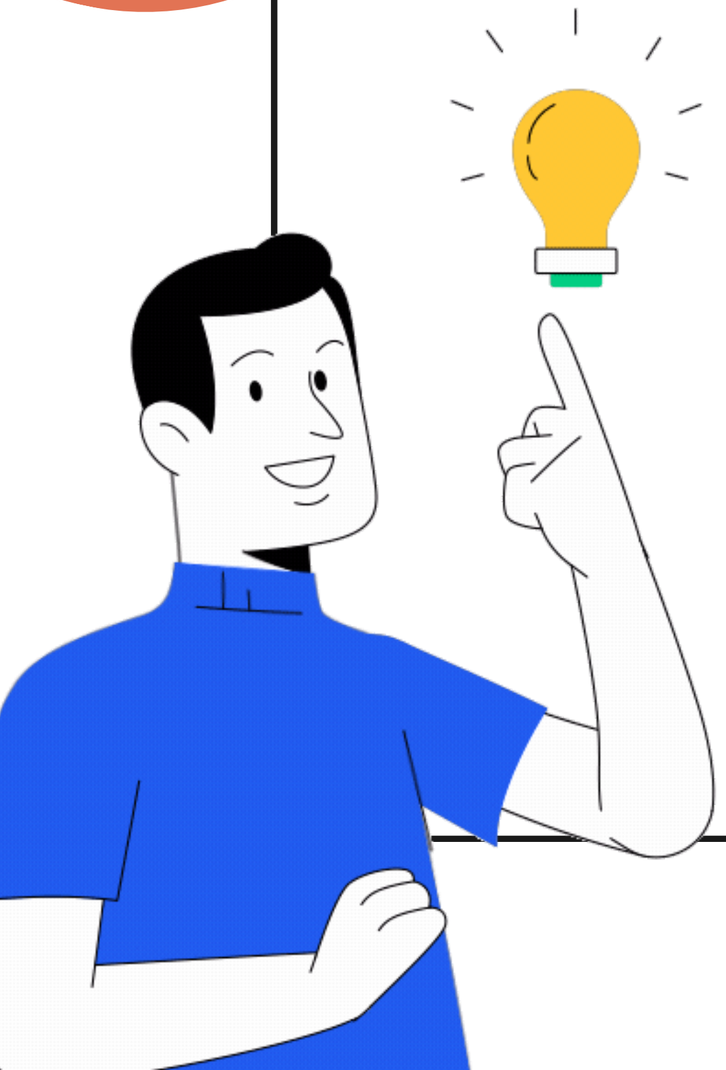


Notes

- Web app deployed on IIITH network
- Fully respnsive
- Takes 1 image at time

Usage

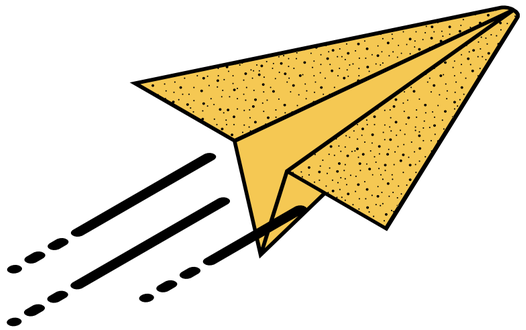
- Upload the image
- View the image
- click onteh predict button
- Classification is done
- results are presented



PLAN AND PROGRESS

- **Pending tasks -** make changes to frontend, deploying app on public server not only on IIITH network
- **Task completed -** Model built for oral cancer classification with responsive front end webpage

www.reallygreatsite.com



THANK YOU!