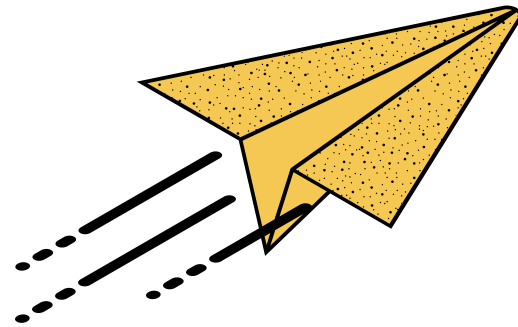


Presented by

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ORAL CANCER DETECTION

classification model for detecting oral cancer cells from
multicancer dataset



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INTRODUCTION



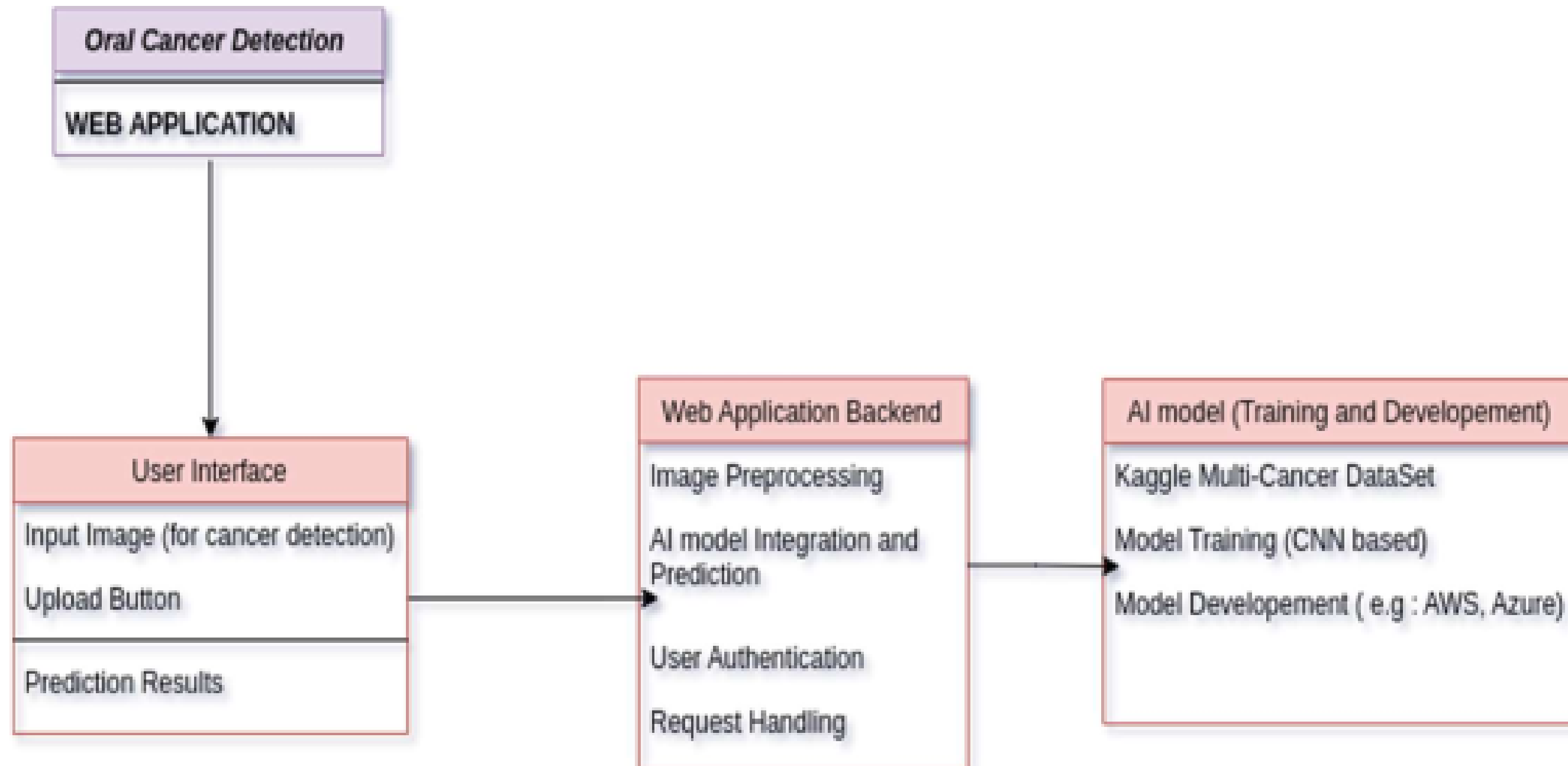
- Web application to predict oral cancer
- Goal : To provide an responsive web application for the users to detect cancer
- Web app uses an oral cancer classification model
- Model - made using neural networks on multi cancer data set
- classification of 2 classes (oral scc and oral normal) from the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

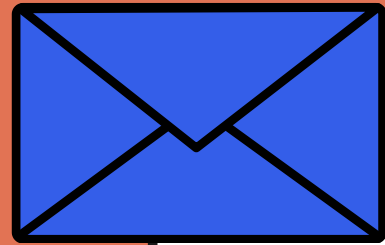
REQUIREMENTS



- data collection and preparation :
 - 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
- Deployment :
 - 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](#)





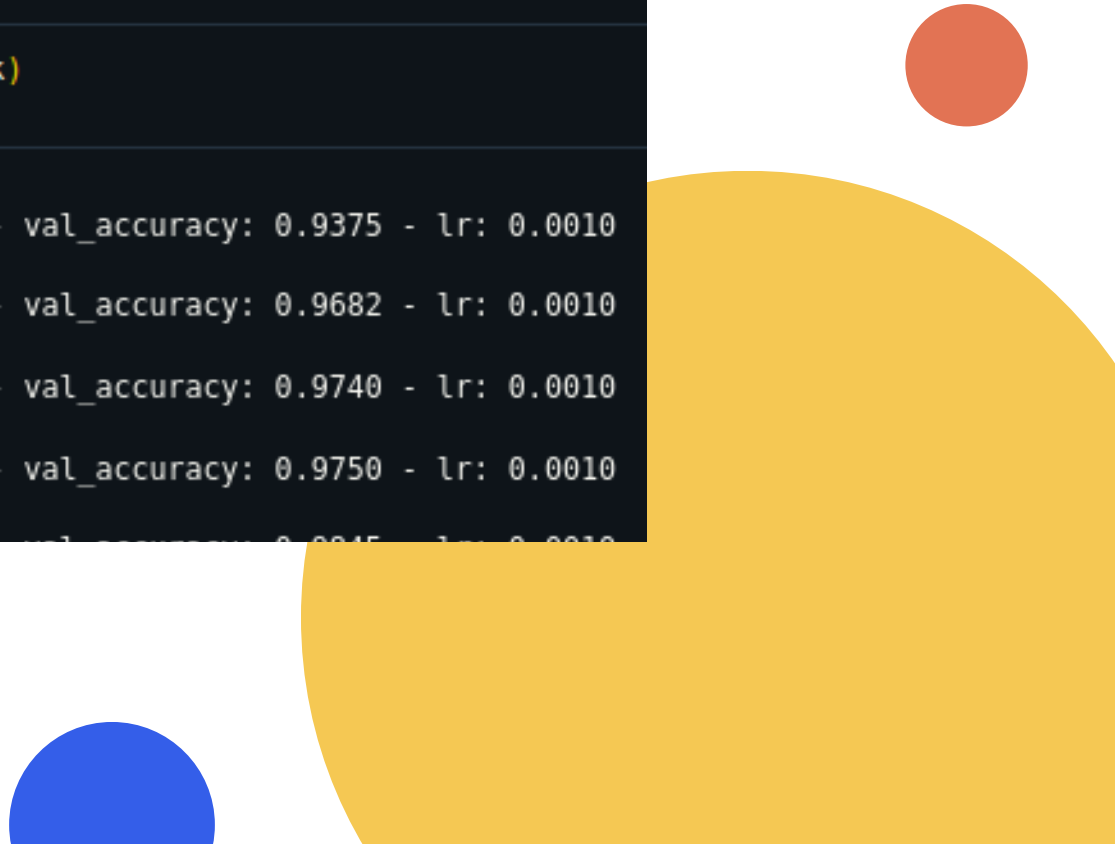
CODE



```
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
3251/3251 [=====] - 2305s 737ms/step - loss: 0.0417 - accuracy: 0.9850 - val_loss: 0.0450 - val_accuracy: 0.9815 - lr: 0.0010
```





MODEL

- **Preprocessing**

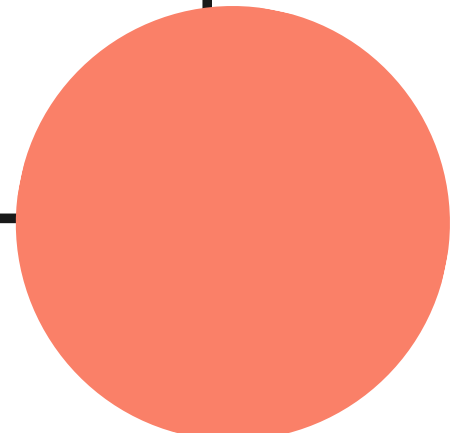
Images are preprocessed and size reduction of the images is done

- **Classifier**

Using RESNET classifier pretrained on Imagenet

- **shuffle and split**

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



WEBAPP

Image Classification App

Upload an image, and we'll predict its class.

Choose an image...



Drag and drop file here

Limit 200MB per file • JPG, PNG, JPEG

Browse files

Instructions:

1. Upload an image (in JPG, PNG, or JPEG format) using the 'Choose an image...' button.
2. Click the 'Predict' button to classify the image into one of the predefined classes.
3. The predicted class will be displayed on the screen.

About This Model:

This model was trained to classify images into specific categories.

For more details about the model and the categories, please visit our [model documentation].

Contact us at yash.agarwal@research.iiit.ac.in or syed.i@research.iiit.ac.in

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Notes

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

Usage

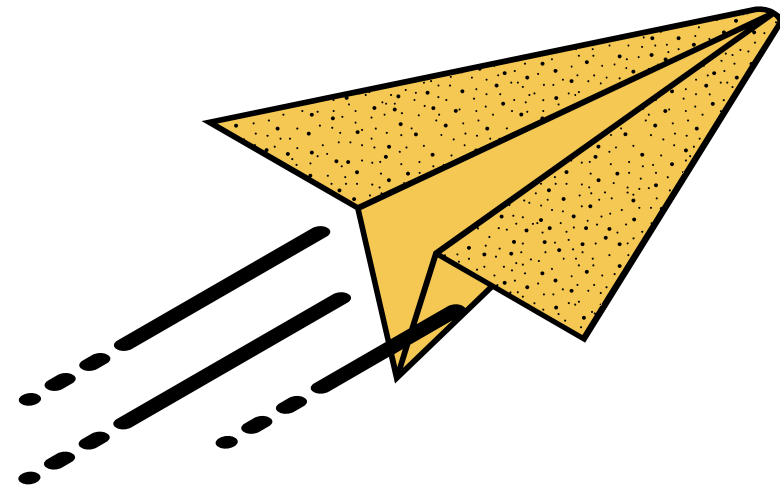
- Upload the image
- View the image
- click on the predict button
- Classification is done
- results are presented



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!

