



PSLV - BRAHMASTRA

NM393:Field Data Analysis and Automated
feature validation from crowd sourced field
photos



PROBLEM STATEMENT

- On Bhuvan Millions of crowdsourcing Images are uploaded everyday pertaining to different subjects:
 - Forests/ Vegetation
 - Buildings & Infrastructure
 - Water Bodies
 - Government Official Buildings
 - Academic Institutions etc.
- Bhuvan is also used for Ministerial Activities
- The data which gets collected is very unstructured and noisy data
- So, we need a focused and automated validation mechanism to understand photograph and relevance for the purpose.
- Essential to extract relevant information from the photograph.



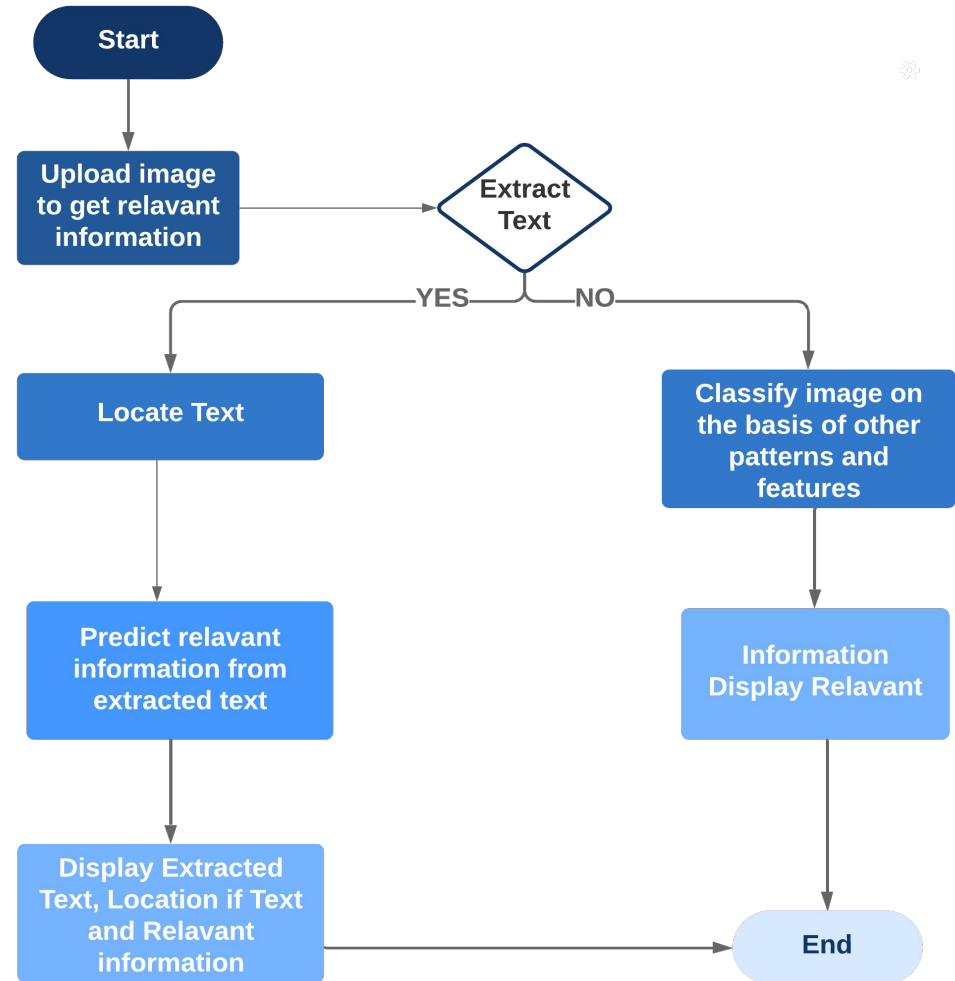
PROBLEM SOLUTION

A webapp, “Gati” which is capable of providing following functionalities:

1. Extracting text from Images.
2. Detecting location of Text.
3. Displaying relevant information based on extracted text.
4. Displaying relevant information based on other features if text isn't present.



WORKFLOW



OCR-Object Character Recognition



Our product has OCR ability that uses following module for image extraction from image :

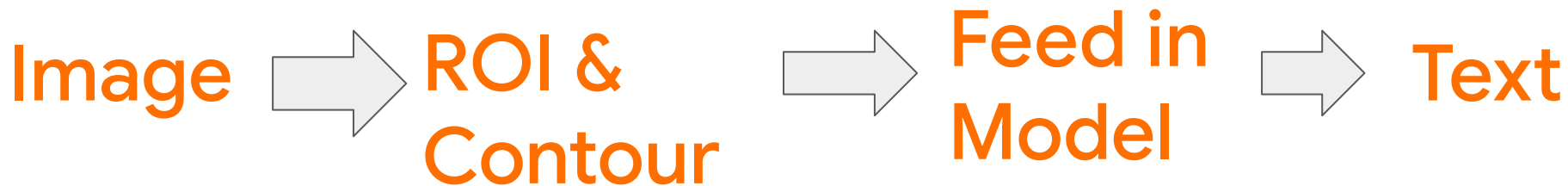
>>PyTesseract



Extraction Flow

Preprocessing steps taken before feeding the image into Pytesseract are as follows ;

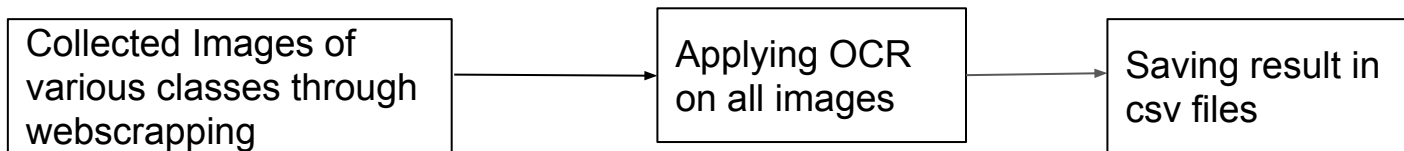
1. Grayscaleing
2. Interpolation
3. Binarization
4. Ensambling





RELEVANT INFORMATION

Data Preparation



Multi-Class Text Classification

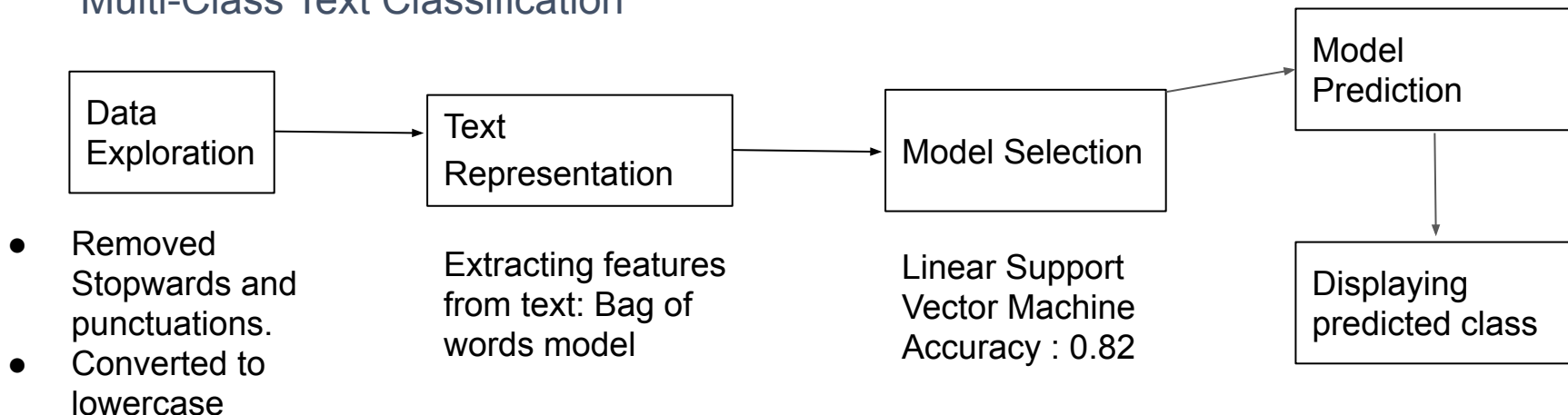




IMAGE CLASSIFICATION

Incase no text extracted classification of image based on other features: Pattern, color, etc.

- Built a Neural network that can classify Natural Scenes around the world.
- Image is classified on the basis of other features into the following categories : Buildings, Water Body, Forest, Glacier, Mountain and Street.
- Since the images doesn't have any text so, we cannot get any more information from the images and all this we get is through color, pattern etc. using Deep Learning Model.
- We built a CNN model : Convolutional Layers, a maxpool layer and 2 dense layers
- Dataset : Training images: 14034 image, Test images: 3000 images
- Validation Accuracy: 0.8390
- Training Accuracy : 0.90



Thank you officials :)

PSLV - Brahmastra

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