Recognizing Text in Images

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Project Description

Write an optical character recognition application that identifies and recognizes printed text within an image.

General Requirements

- Investigate existing algorithms and libraries - Complete
- Initially, try black text on a white background - Complete
- Design a uniform API so that you can plug in alternative OCR algorithms - Complete
- Evaluate the effectiveness of your OCR compared to existing algorithms - Complete
- Develop an application that employs augmented reality for text within an image (e.g geo-tag state park signs, license plates, campus building signs,..) - Complete
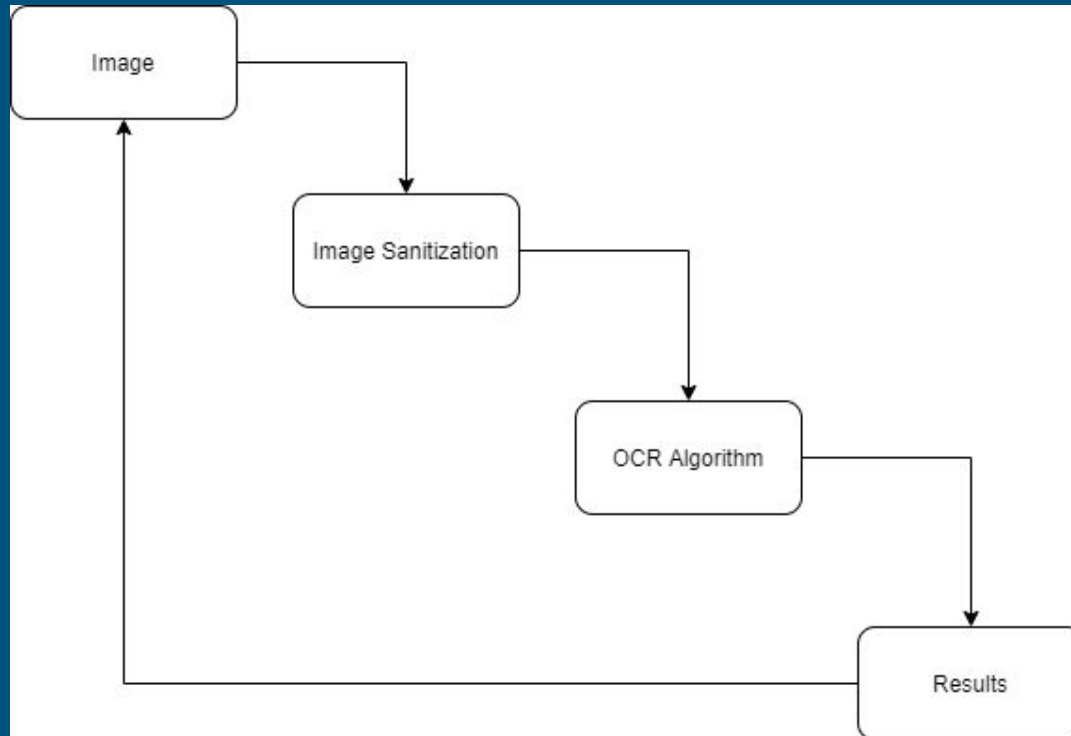
Solutions

- Python

- Augmented Reality

- Live Video

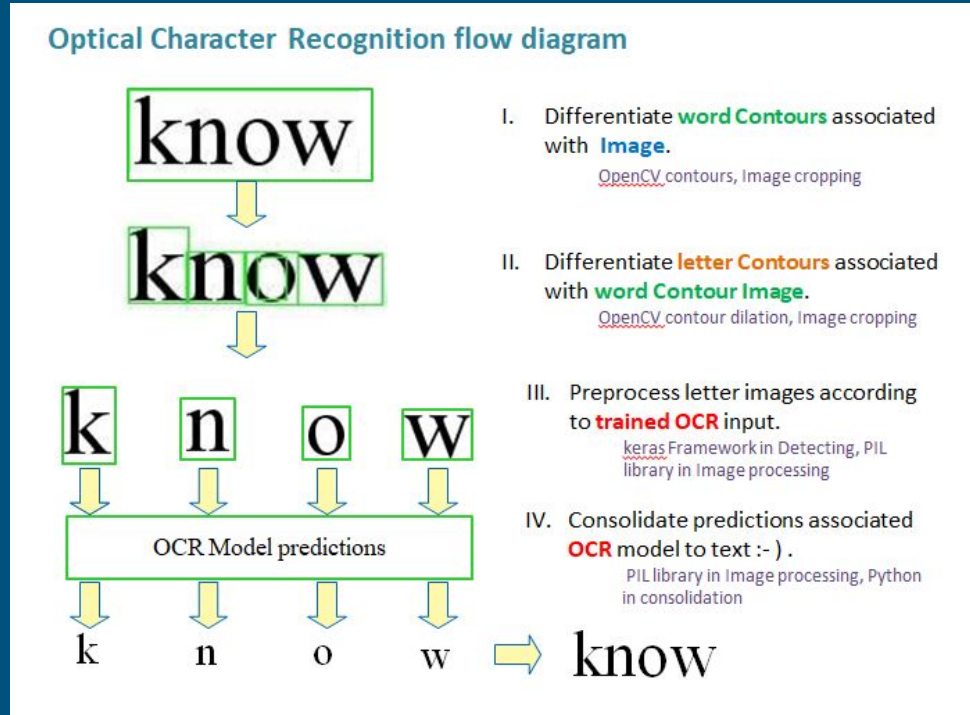- Google Search

Data Flow

Picture Sanitization

- OpenCV

- Greyscale

- Blur

- Binary Threshold
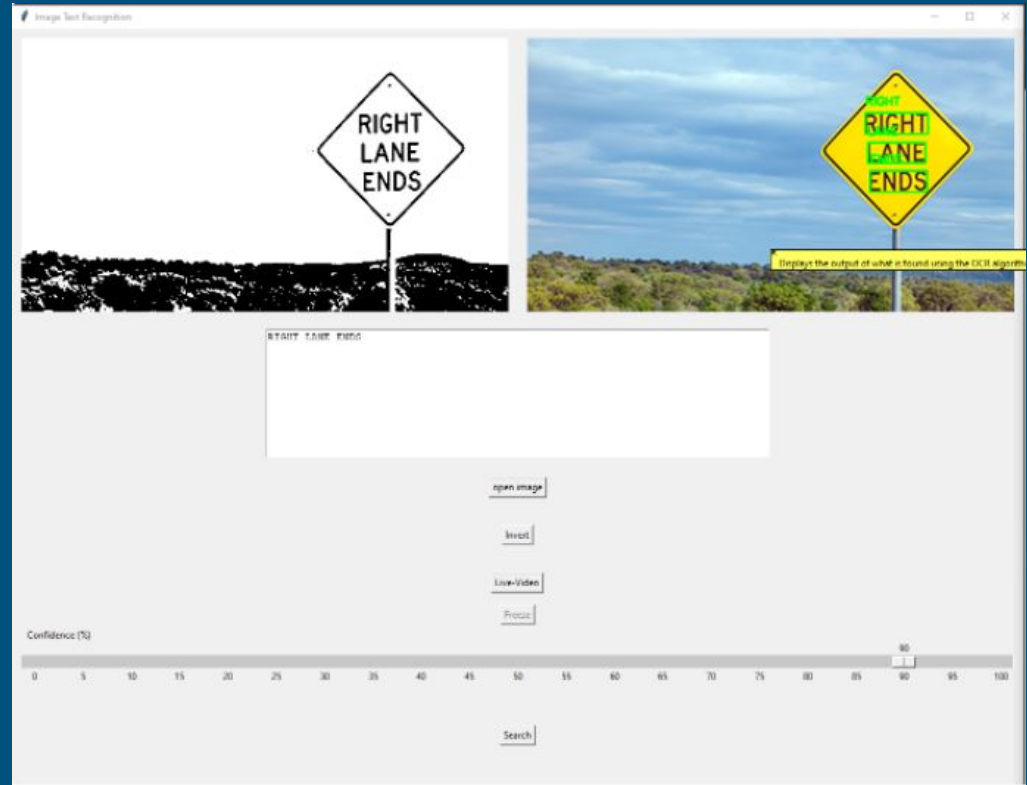
OCR (Optical Character Recognition)

- Google - TensorFlow

- Neural Network

- Google - Tesseract

Optical Character Recognition flow diagram

I. Differentiate **word Contours** associated with **Image**.
   OpenCV contours, Image cropping

II. Differentiate **letter Contours** associated with **word Contour Image**.
   OpenCV contour dilation, Image cropping

III. Preprocess letter images according to **trained OCR** input.
   keras Framework in Detecting, PIL library in Image processing

IV. Consolidate predictions associated **OCR** model to text :-) .
   PIL library in Image processing, Python in consolidation

GUI (Graphical User Interface)

- Tkinter

- Positioning

- Events

Event Timer
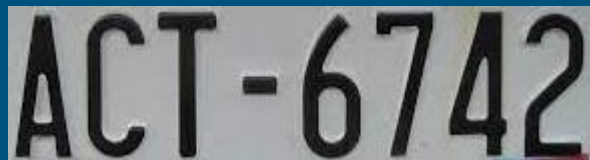
- Bottleneck

- Application Speed

- Live Video

Analysis

- Text orientation / position

- Specify Language

- Image sanitization

- lighting

Demonstration

Strategies/Resources

- Go for it attitude

- Professors

- Stackoverflow

- GeeksforGeeks

- Tutorialspoint

Extensions

- Improved text recognition on license plates

- Implement on a smartphone

- Recognize text at an angle

- Train own neural network

Questions