TEXT RECOGNITION ANDROID APP FOR LOW-VISION

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Need

- Visually impaired people face troubles due to inaccessible infrastructure and social challenges in daily life. To increase the life quality of those people, we report a portable and user-friendly smartphone-based platform capable of to "read" text (a sheet of paper, a signal, etc.), including the option of a narrator, using image obtained from a smartphone camera.

- Our project has great potential to be used for reading text by visually impaired people with advantages such as portability, simple operation and rapid response.
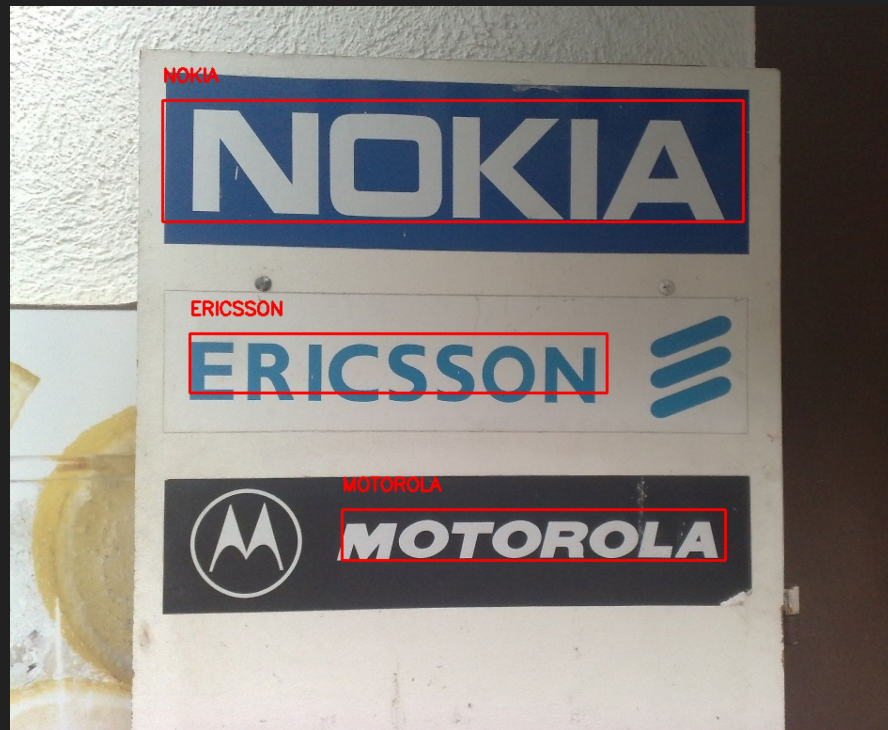
© VeryPDF

RESTRICTED
AREA
DO NOT ENTER
AUTHORIZED
PERSONNEL ONLY

End of Road 24
Auke Bay 1
City Center 12

Our Approach

The text reading system is integrated with our custom- designed Android application, named as "Image Reader!" which displays and speaks out the text written on the image .

This will help the visually impaired to get the textual content present in the image .

Reading Text On Image

Model Overview

Preprocessing

- Remove the noise from the image

- Remove the complex background from the image

- Handle the different lightning condition in the image
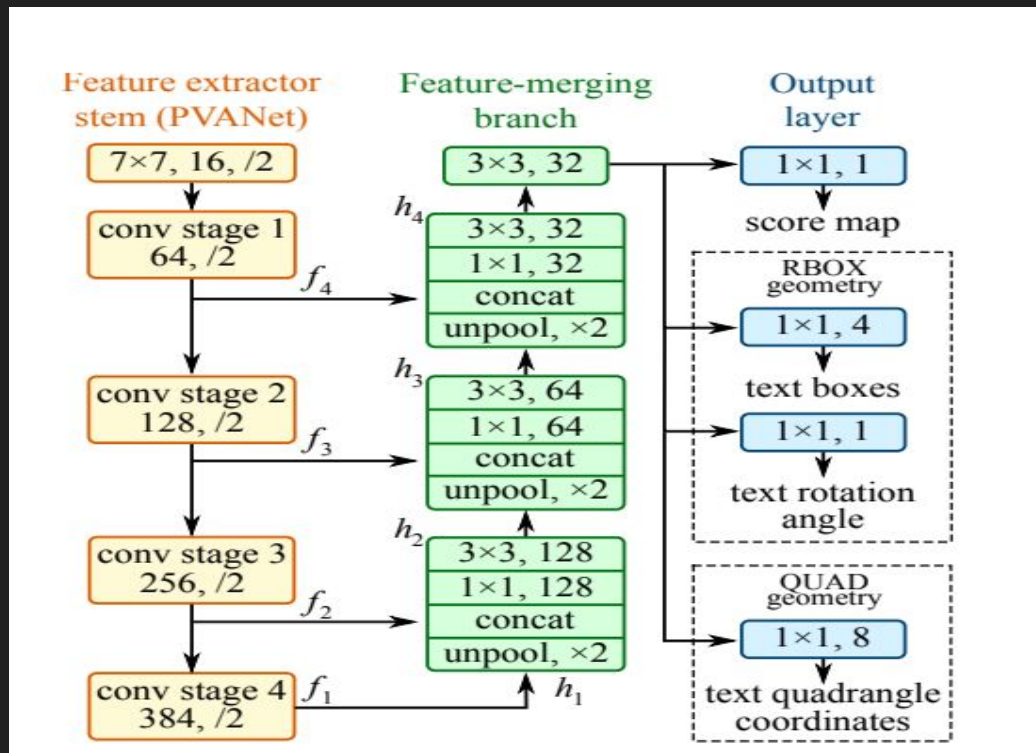
Text Detection

- Text detection techniques are required to detect the text in the image and create and bounding box around the portion of the image having text.
- We are using EAST method for text detection.
- This is a very robust deep learning method for text detection. EAST can detect text both in images and in the video. It runs near real-time at 13 FPS on 720p images with high text detection accuracy.

Dataset

EAST has been trained on ICDAR 2015, COCO-Text and MSRA-TD500.

On the ICDAR 2015 dataset, the proposed algorithm achieves an F-score of 0.7820 at 13 fps at 720p resolution.
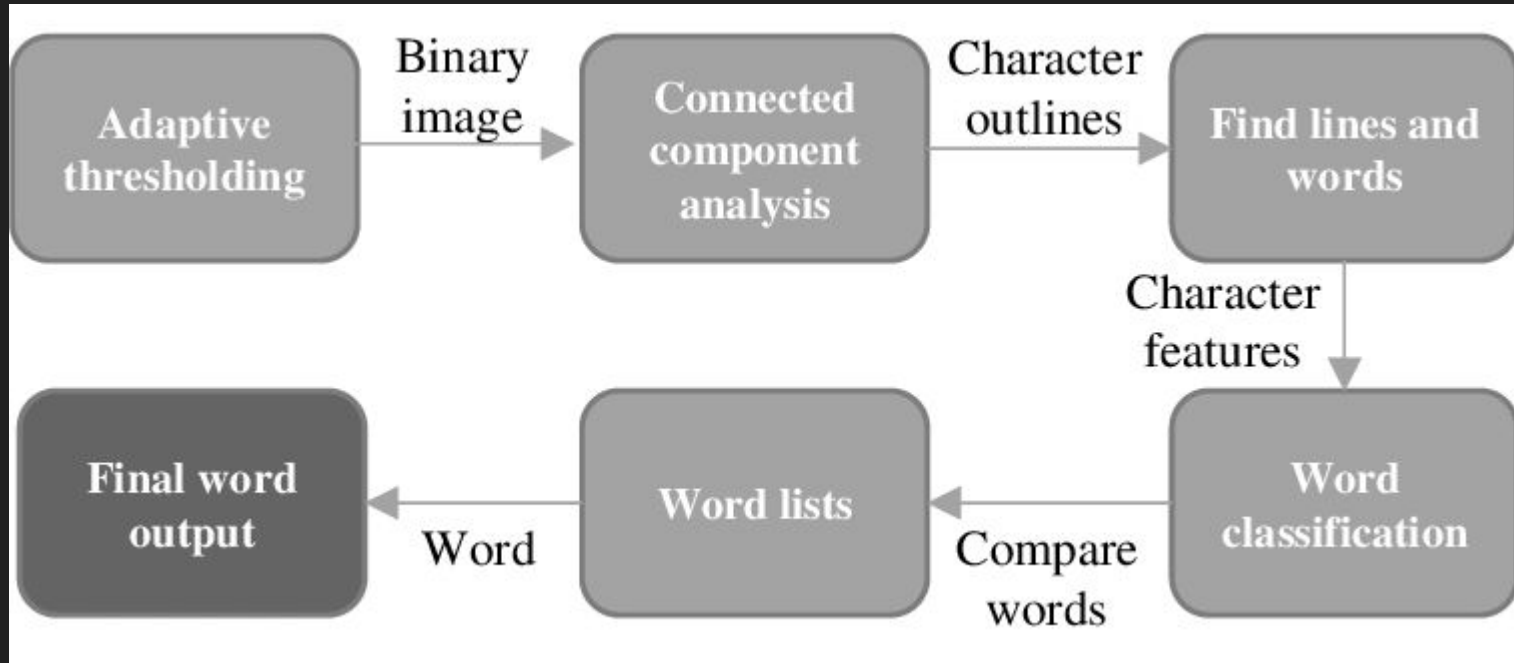
Structure of text detection EAST
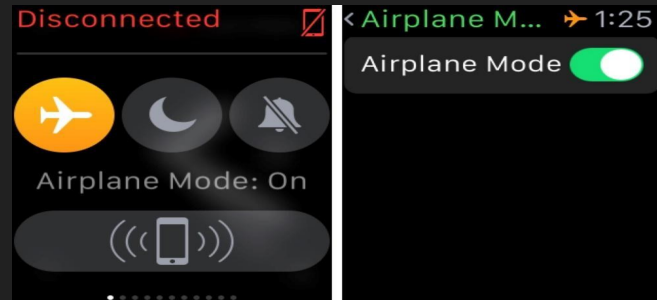
Text Recognition

- Once we have detected the bounding boxes having the text, the next step is to recognize text.

- We are using Tesseract Open Source OCR engine.
- Tesseract tests the text lines to determine whether they are fixed pitch. Where it finds fixed pitch text, Tesseract chops the words into characters using the pitch, and disables the chopper and associator on these words for the word recognition step.

Architecture of Tesseract OCR Engine

Working of Android

The blind man/low vision person can point the camera to surroundings and using our saved trained models we identify all the textual data present in the view. The android mobile then speaks aloud the text recognised and the person will be able to hear the text . An important feature of our app is that it can work in airplane/ offline mode which is very useful in low internet bandwidth areas and where there is no signal.

Features of Android App

The apps gives 4 features to the user
- ❏ Displays text from the pointed scene
- ❏ Adjustable Text size for identified text
- ❏ Speak Out the detected text
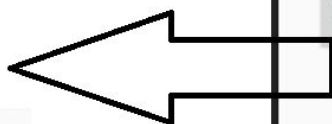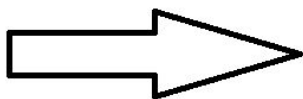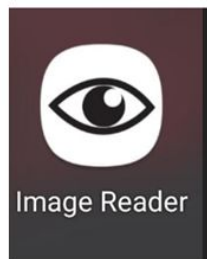- ❏ Saving text for future reference

Image Reader

7. LIKE A SUNFLOWER

CH. Like a sunflower that follows every movement of the Sun
So I turn towards You, to follow You, my God

1. In simplicity, charity I follow. (2)
2. In simplicity, honesty I follow (2)
3. In simplicity, fidelity, I follow.

8. MORNING HAS BROKEN

1. Morning has broken like the first morning
Blackbird has spoken, like the first bird
Praise for the singing, praise for the morning
Praise for them springing, fresh from the word.

2. Sweet the rains new fall, sunlit from heaven
Like the first dew fall, on the first grass
Praise for the sweetness, of the wet garden
Sprung in completeness, where his feet pass.

3. Mine is the sunlight, mine is the morning
Born of the one light, Eden saw play
Praise with elation, praise every morning
God's recreation, of the new day.

15

| MEDIUM | LARGE | SPEAK | SAVED |

7. LIKE A SUNFLOWER
CH Lke a suntouer thet ows evey mevement of the Su
Sol tun towcers N to Rllow You my G0d
In simplicity, charity I follow (2)
in simplicity, honesty I follow (2)
3 In simplicity, fidelity, I follow.
8. MORNING HAS BROKEN
Morning has broken like the first

| MEDIUM | LARGE | SPEAK | SAVED |

Takes courage to say, what you know
will not pay
give each one his share, though
there'll be less to spare
be seeking no more, than the
neighbour next door it
es courage to be true,
7. LIKEA SUNFLOWER
a sunflower that follows every
movement of the Sun
urn towards You, to follow You, my
God
blicity, charity I follow (2)
licity, honesty I follovw (2)
icity, fidelity, I follow.
MORNING HAS BROKEN
as broken like the first morning
as spoken, like th

DELETE ALL

02-05-
2021
19:49:46

School Certificate
Examination, New Delhi, on 14th June 1972 and
in December 1972
the students were fortunate to take their ICSE
Examination at the
Little Flower School centre.
The Sisters of St. Joseph of Cluny took over the
administration of
the school in 1975. The Society of the Sisters of
St. Joseph of Cluny
is founded by the members of the Christian
community for the
purpose of establishing and administering

02-05-
2021
20:14:15

not returned or
fine not paid, the student will not be allowed to
attend his/her
classes. Students of Classes XI and XII will pay
a fine of Rs.3/- per
day including holidays.
3.5 After borrowing a book, if the student is
absent from school
for reasons such as illness or any other valid
reason, the book may
be surrendered through a classmate on or
before the due date.
sleeves=
GIRLS

02-05-
2021
20:14:39

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W
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D
F

Thank you.