BMS INSTITUTE OF TECHNOLOGY, BANGALORE-560064

Department of Electrical & Electronics Engineering

PROJECT BASED LEARNING

Synopsis of Electrical Project - 2021-2022 (6th Semester)

		"IMAGE TO SPEECH"	
Sl No	USN	Name	Signature
1	1BY18EE032	M MADHAN KUMAR	
2	1BY18EE047	RANJITH R	
3	1BY18EE053	SUJEETH KUMAR G K	
4	1BY18EE059	ULLAS RAJU C R	

Abstract: We here show the process of capturing an Image and then extract the Features from the Image. In our case features are Text and we detect what language is present in the extracted characters and we convert text to speech of our desired languages and the output is audio of selected language.

Introduction:

   Image Processing is the process of analysing and manipulating a digital image primarily aimed at improving its quality or for extracting some information from it which could then be put to some use. We can also say that it is a use of computer algorithms, in order to get enhanced image either to extract some useful information.

OpenCV is used as an image processing library in many computer vision real-time applications. ... As we know an image is a combination of pixels, for a color image we have three channels with pixels ranging from 0 to 225, and for black & white- binary images has only one change ranging from 0 to 1 & Grey scale images Varies from the range from 0 to 255.

Image processing mainly include the following steps:
1.Importing the image via image acquisition tools;
2.Analysing and manipulating the image;
3.Output in which result can be altered image or a report which is based on analysing that image.

CODE :

```
# importing modules for image extraction from

googletrans import Translator

import easyocr # ocr = optical character recognition from

gtts import gTTS # gtts = google text to translate from

IPython.display import Audio #to save & play the audio


lang = "ja" #to specify what langauge is present in the image

reader = easyocr.Reader([lang])  #for recognizing the language in the image import

PIL  # PIL is Python Imaging Language used for image processing techniques from

PIL import ImageDraw #used to draw the bounding boxes around the text
#*************************************************************************************
***#


img1 = "japan"+ str('.png') #to get the image

im=PIL.Image.open(img1)   # for reading the image

bounds=reader.readtext(img1,

add_margin=0.3,width_ths=2.0,link_threshold=0.8,decoder='beamsearch',blocklist='=-')  # for reading
the text in the image

print(bounds) #printing the values of recongnized OCR language


#*************************************************************************************
***#
# for making the boundung bozes around the texts

def draw_boxes(image, bounds, color='yellow',width=2): # function to draw bounding boxes around the
```

```
text
    draw=ImageDraw.Draw(image)
for bound in bounds:
        p0, p1, p2, p3 = bound[0]
        draw.line([*p0, *p1, *p2, *p3, *p0], fill=color, width=width)
    return image draw_boxes(im,bounds)
im.show() #shows the image with bounding box around the featured text
```

#**
***#

to extract and print the text from the image text_list=reader.readtext(img1

,link_threshold=0.8,add_margin=0.55,width_ths=0.7,decoder='beamsearch',blocklist='=-',detail=0)

print(text_list) #printing the text present in the image without displaying OCR values

text_comb=' '.join(text_list)   #to join and print the text as a single string print(text_comb)

#**
***#

#to print the text as a single string translator

= Translator()

print(translator.detect(text_comb))   #calling the method in class Translator to detect the language in the text

#**
***# text_en=translator.translate(text_comb,src=lang,dest='en')   # to convert the text from given

language

to english

print(text_en.text)

to translate the text to audio file

ta_tts=gTTS(text_en.text) #usesd to change text to destination language ta_tts.save('english.mp3')

Audio('english.mp3',autoplay=True) # with us accent

#with indian accent

ta_tts=gTTS(text_en.text,lang='hi')   #with the change in dest location(lang=hi here we used indian accent) we can get that that location accent

ta_tts.save('hi_english.mp3')

Audio('hi_english.mp3',autoplay=True)   #with indian accent

```
#****************************************************************************************
***#

#to change the text to indian language(hindi)
text_hi=translator.translate(text_comb, src=lang, dest='hi') print(text_hi.text)

ta_tts_hi=gTTS(text_hi.text, lang='hi')

ta_tts_hi.save('hindi.mp3')

Audio('hindi.mp3',autoplay=True)

#****************************************************************************************
***#

#to change the language to telugu

text_te=translator.translate(text_comb,src=lang,dest='te') print(text_te.text)

ta_tts_te=gTTS(text_te.text,lang='te') ta_tts_te.save('telugu.mp3')

Audio('telugu.mp3',autoplay=True)

#****************************************************************************************
****#

#to change the language to french

text_fr=translator.translate(text_comb,src=lang,dest='fr') print(text_fr.text)

ta_tts_fr=gTTS(text_fr.text,lang='fr') ta_tts_fr.save('french.mp3')

Audio('french.mp3',autoplay=True)
```

System requirements :
- IDE
- Python Interpreter
- PIL
- OCR
- gTTS
- googletrans

Reference :

- OPEN COURSE – Machine learning for Image Analysis.

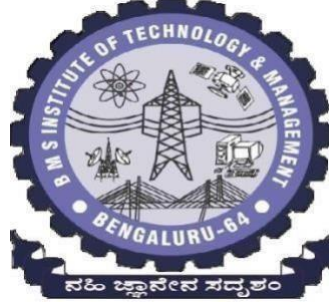**SOURCES :**

https://cloud.google.com/vision/docs/languages

BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT

Yelahanka, Bangalore – 560 064

<u>Department of Electrical & Electronics Engineering</u>

<u>PROJECT BASED LEARNING (2021)</u>

Synopsis of the Project work

" <u>IMAGE TO SPEECH</u> "

Submitted By:

1. M Madhan kumar

2. Ranjith R

3. Sujeeth kumar G k

4. Ullas Raju C R