

**LAPORAN UJIAN AKHIR SEMESTER 1
MATA KULIAH
PENGOLAHAN GAMBAR**

Topik
Segmentasi Citra



PENYUSUN LAPORAN



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**PROGRAM STUDI MANAJEMEN INFORMATIKA
JURUSAN MANAJEMEN INFORMATIKA
POLITEKNIK NEGERI SRIWIJAYA
2024**

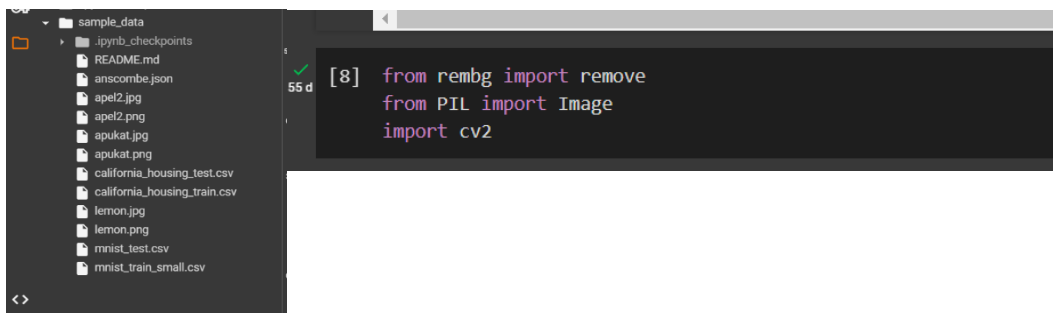
HASIL

1. Pertama Install library “rembg[cli,gpu]” untuk menghapus background di google colab.

```
pip install rembg[cli,gpu]
```

```
Requirement already satisfied: rembg[cli,gpu] in /usr/local/lib/python3.10/dist-packages (2.0.53)
Requirement already satisfied: jsonschema in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (4.19.2)
Requirement already satisfied: numpy in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (1.23.5)
Requirement already satisfied: onnxruntime in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (1.16.3)
Requirement already satisfied: opencv-python-headless in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (4.9.0.80)
Requirement already satisfied: pillow in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (9.4.0)
Requirement already satisfied: pooch in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (1.8.0)
Requirement already satisfied: pyyaml in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (6.0.1)
Requirement already satisfied: scikit-image in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (0.19.3)
Requirement already satisfied: scipy in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (1.11.4)
Requirement already satisfied: tqdm in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (4.66.1)
Requirement already satisfied: onnxruntime-gpu in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (1.16.3)
Requirement already satisfied: aiohttp in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (3.9.1)
Requirement already satisfied: asyncer in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (0.0.2)
Requirement already satisfied: click in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (8.1.7)
Requirement already satisfied: fastapi in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (0.108.0)
Requirement already satisfied: filetype in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (1.2.0)
Requirement already satisfied: gradio in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (4.13.0)
Requirement already satisfied: python-multipart in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (0.0.6)
Requirement already satisfied: uvicorn in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (0.25.0)
Requirement already satisfied: watchdog in /usr/local/lib/python3.10/dist-packages (from rembg[cli,gpu]) (3.0.0)
Requirement already satisfied: attrs<17.3.0 in /usr/local/lib/python3.10/dist-packages (from aiohttp->rembg[cli,gpu]) (23.2.0)
Requirement already satisfied: multidict<7.0,>=4.5 in /usr/local/lib/python3.10/dist-packages (from aiohttp->rembg[cli,gpu]) (6.0.4)
Requirement already satisfied: yarl<2.0,>=1.0 in /usr/local/lib/python3.10/dist-packages (from aiohttp->rembg[cli,gpu]) (1.9.4)
Requirement already satisfied: frozenlist<1.1.1 in /usr/local/lib/python3.10/dist-packages (from aiohttp->rembg[cli,gpu]) (1.4.1)
Requirement already satisfied: aiosignal<1.1.2 in /usr/local/lib/python3.10/dist-packages (from aiohttp->rembg[cli,gpu]) (1.3.1)
Requirement already satisfied: async-timeout<5.0,>=4.0 in /usr/local/lib/python3.10/dist-packages (from aiohttp->rembg[cli,gpu]) (4.0.3)
Requirement already satisfied: anyio<4.0.0,>=3.4.0 in /usr/local/lib/python3.10/dist-packages (from asyncer->rembg[cli,gpu]) (3.7.1)
Requirement already satisfied: pydantic<1.8.1,>=1.8.0 in /usr/local/lib/python3.10/dist-packages (from fastapi->rembg[cli,gpu]) (1.7.4)
Requirement already satisfied: starlette<0.35.0,>=0.29.0 in /usr/local/lib/python3.10/dist-packages (from fastapi->rembg[cli,gpu]) (0.32.0.post1)
Requirement already satisfied: uvicorn[standard]<4.8.0 in /usr/local/lib/python3.10/dist-packages (from fastapi->rembg[cli,gpu]) (4.9.0)
```

2. Masukkan file foto yang diinginkan lalu pindahkan ke file data, lalu ketik kode seperti dibawah menginstall library.



3. Salin file gambar yang ada di sample data lalu pindahkan nama filenya ke input dan output path seperti dibawah ini, kemudian kode yang kedua untuk mengubah gambar menjadi png, lalu kode yang terakhir untuk menghapus background gambar dan hasilnya akan seperti gambar dibawah

```
+ Kode + Teks
```

```
[25] input_path = '/content/sample_data/apel2.jpg'
      output_path = '/content/sample_data/apel2.png'

[36] with open(input_path, 'rb') as i:
      with open(output_path, 'wb') as o:
          input = i.read()
          output = remove(input)
          o.write(output)

[34] # input = Image.open(input_path)
      # output = remove(input)
      # output.save(output_path)
```



4. Instal OpenCV untuk mengimport gambar pada google colab

```
[2] # OpenCV - Open computer vision
    from google.colab import files
    file = files.upload()

Pilih File lemon.jpg
• lemon.jpg(image/jpeg) - 19742 bytes, last modified: 10/1/2024 - 100% done
Saving lemon.jpg to lemon.jpg
```

5. Kode dibawah untuk memanggil Library Opency untuk menampilkan gambar dilayar

```
# memanggil library opencv
# baca gambar dengan pola
import cv2
# memanggil fungsi google colab untuk memperbaiki syntax menampilkan dilayar
from google.colab.patches import cv2_imshow
# membuat variabel untuk memuat nilai gambar yang ada di folder kerja
img = cv2.imread("strawberry_smothies.jpg")
# menampilkan di layar dengan memanggil variabel img yang sudah berisi nilai gambar
cv2.imshow(img)
# melihat tipe data dari variabel img disimpan sebagai apa
print(type(img))
```




6. Kemudian kode dibawah untuk membaca file foto gambar asli menjadi gambar tepi seperti contoh dibawah.

```
import cv2
import numpy as np
import matplotlib.pyplot as plt

image = cv2.imread("strawberry_smothies.jpg")
image = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)

canny_output = cv2.Canny(image, 80, 80)

plt.subplot(121), plt.imshow(cv2.cvtColor (img, cv2.COLOR_BGR2RGB))
plt.title("gambar asli"),plt.xticks([]),plt.yticks([])
plt.subplot(122), plt.imshow(canny_output, cmap="gray")
plt.title("gambar tepi"),plt.xticks([]),plt.yticks([])
plt.show()
```



PENJELASAN

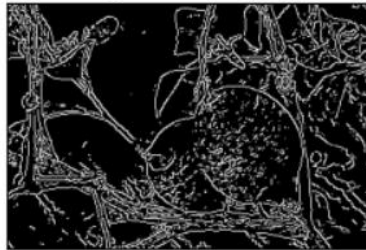
- Kode program ``pip install rembg[gpu,cli]`` digunakan untuk menginstal perangkat lunak Rembg (Remove Background) serta komponen GPU dan CLI (Command Line Interface).
- kode program `"input_path = '/content/sample_data/IMG_2352.jpg'"`
`output_path = '/content/sample_data/IMG_2352.png'"` ini untuk membaca gambar dari input_path, mengonversinya menjadi citra grayscale, dan menyimpan hasilnya sebagai file png di output_path.
- Kegunaan `plt.subplot()` dalam modul `matplotlib.pyplot` (sering diimpor sebagai `plt`) digunakan untuk membuat subplot atau menentukan posisi suatu gambar dalam suatu grid. Ini memungkinkan Anda untuk menampilkan beberapa plot atau gambar dalam satu gambar besar.
- `plt.title('Plot Garis')` digunakan untuk memberikan judul seperti "Gambar asli dan Gambar tepi" pada plot garis yang telah dibuat. Judul ini memberikan konteks atau informasi tambahan tentang isi atau maksud dari plot tersebut.

HASIL CITRA GAMBAR WAJIB

gambar asli



gambar tepi



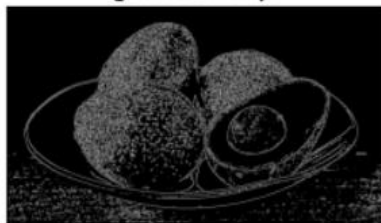
Remove bg



gambar asli



gambar tepi



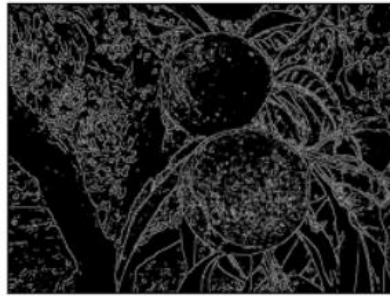
Remove bg



gambar asli



gambar tepi



Remove bg

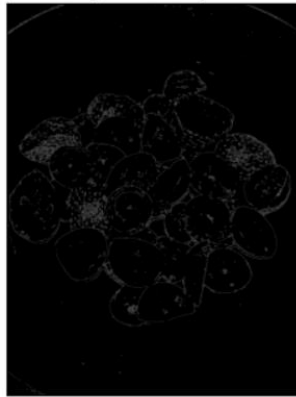


HASIL CITRA GAMBAR JEPRETAN KAMERA

gambar asli



gambar tepi



Remove bg



gambar asli



gambar tepi



Remove bg

