Source Code

```
from flask import Flask, Response from
flask_cors import CORS import cv2
import pickle import cvzone import
numpy as np width, height = 107,48 cap
= cv2.VideoCapture('carPark.mp4')

with open('CarParkPos', 'rb') as f: posList
  = pickle.load(f)

def CheckParkingSpace(imgPro, img):
  spaceCounter = 0
  for pos in posList:
    x,y = pos imgCrop =
    imgPro[y:y+height,x:x+width] count =
    cv2.countNonZero(imgCrop)

    if count<900: color =
    (0,255,0) thickness
    = 4
    spaceCounter+=1
    else:
      color = (0, 0, 255) thickness
      = 2

    cv2.rectangle(img, pos, (pos[0] + width, pos[1] + height), color, thickness)
    cvzone.putTextRect(img, str(count), (x, y + height - 3), scale=1, thickness=2,
    offset=0, colorR=color)
  cvzone.putTextRect(img, f'Free: {spaceCounter}/{len(posList)}', (100, 60), scale=4,
          thickness=5, offset=20, colorR=(0, 200, 0))

def generate():
  while True:
    if cap.get(cv2.CAP_PROP_POS_FRAMES) ==
cap.get(cv2.CAP_PROP_FRAME_COUNT):
      cap.set(cv2.CAP_PROP_POS_FRAMES,0)

    success, img = cap.read() imgGray =
cv2.cvtColor(img,cv2.COLOR_BGR2GRAY) imgBlur =
cv2.GaussianBlur(imgGray,(3,3),1) imgThreshold =
```

```
cv2.adaptiveThreshold(imgBlur,255,cv2.ADAPTIVE_THRESH_GAUSSIAN_C,
cv2.THRESH_BINARY_INV,25,16)

    imgMedian = cv2.medianBlur(imgThreshold,5)
    kernel = np.ones((3,3),np.uint8)
    imgDilate = cv2.dilate(imgMedian,kernel,iterations=1)

    CheckParkingSpace(imgDilate, img)

    ret, jpeg = cv2.imencode('.jpg', img) frame = jpeg.tobytes()
    yield (b'--frame\r\n' b'Content-Type: image/jpeg\r\n\r\n' +
    frame + b'\r\n\r\n')

app = Flask(__name__)
CORS(app)

@app.route('/video_feed') def video_feed(): return Response(generate(),
mimetype='multipart/x-mixed-replace; boundary=frame')

if __name__ == '__main__':

app.run(host='0.0.0.0', debug=True)
```

index.html:

```
<!DOCTYPE html>
<html>
<head>
  <style>
    body {
      background: linear-gradient(to right, #0f0c29, #302b63, #24243e);
      color: white; display: flex; justify-content: center;
      align-items: center; height:
      100vh; margin: 0; font-
      family: Arial, sans-serif;
      overflow: hidden; position:
      relative;
    }
    img {
      max-width: 80%; border:
      10px solid white; border-
      radius: 20px;
```

```
            box-shadow: 0 0 50px rgba(0, 0, 0, 0.5);
        }
        h1 {
            position: absolute; top: 20px;
            left:       50%;       transform:
            translateX(-50%);          text-
            transform: uppercase; letter-
            spacing: 5px;
            text-shadow: 0 0 10px rgba(255, 255, 255, 0.5);

        }
        .banner   {   position:
            absolute;   bottom:
            20px;           width:
            100%;
            text-align:    center;
            color:    #fff;    font-
            size: 1.5em;
            <!-- animation: scroll 30s linear infinite; -->
        }
        <!-- @keyframes scroll {
            0% { transform: translateX(100%); }
            100% { transform: translateX(-100%); }
        } -->
    </style>
</head>
<body>
    <h1>AI Parking System</h1>
    <img src="http://localhost:5000/video_feed" />
<div class="banner">Created by Rishi, Rifaz, Aditya and Jewel</div>
</body>
</html>
```