In [1]:

```
import cv2
import numpy as np
```

In [2]:

```
# Create a function to detect a specific color range
def detect_color(frame, lower_range, upper_range):
    hsv = cv2.cvtColor(frame, cv2.COLOR_BGR2HSV)
    mask = cv2.inRange(hsv, lower_range, upper_range)
    result = cv2.bitwise_and(frame, frame, mask=mask)
    return result

```

In [ ]:

```
# Open the webcam
cap = cv2.VideoCapture(0)

# Define the color ranges (in HSV format)
lower_red = np.array([0, 100, 100])
upper_red = np.array([10, 255, 255])

lower_green = np.array([35, 100, 100])
upper_green = np.array([85, 255, 255])

lower_blue = np.array([100, 100, 100])
upper_blue = np.array([140, 255, 255])

while True:
    # Capture frame-by-frame
    ret, frame = cap.read()

    # Perform color detection for red, green, and blue
    red_result = detect_color(frame, lower_red, upper_red)
    green_result = detect_color(frame, lower_green, upper_green)
    blue_result = detect_color(frame, lower_blue, upper_blue)

    # Combine the color-detected frames into a single frame
    combined_frame = cv2.addWeighted(red_result, 1, green_result, 1, 0)
    combined_frame = cv2.addWeighted(combined_frame, 1, blue_result, 1, 0)

    # Display the original and combined color-detected frames
    cv2.imshow('Original', frame)
    cv2.imshow('Combined Color Detection', combined_frame)

    # Exit loop if 'q' key is pressed
    if cv2.waitKey(1) & 0xFF == ord('q'):
        break

# Release the webcam and close windows
cap.release()
cv2.destroyAllWindows()
```