In [1]:

```
#importing libraries
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 [3]:

```
# 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)

    # Display the original and color-detected frames
    cv2.imshow('Original', frame)
    cv2.imshow('Red Detection', red_result)
    cv2.imshow('Green Detection', green_result)
    cv2.imshow('Blue Detection', blue_result)
    # 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()
```

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[ WARN:0@0.465] global /private/var/folders/sy/f16zz6x50xz3113nwtb9bvq
00000gp/T/abs_f6tvh9615u/croot/opencv-suite_1691620375715/work/module
s/videoio/src/cap_gstreamer.cpp (862) isPipelinePlaying OpenCV | GStre
amer warning: GStreamer: pipeline have not been created
```

In [ ]:

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