Principles of Computer Vision for AI

Aiden Williams Logan Formosa

372001L id number

aiden.williams.19@um.edu.mt email

# Part 1

## Stage 1

## Stage 2 (Re-Write + Format to keep within 4page limit)

In this stage of the assignment two functions where developed: removeGreen and changeBackground. The two functions operate similarly.

The process starts by converting the passed image, like [fig 1] to HSV colouring and then getting a mask of the green colours.

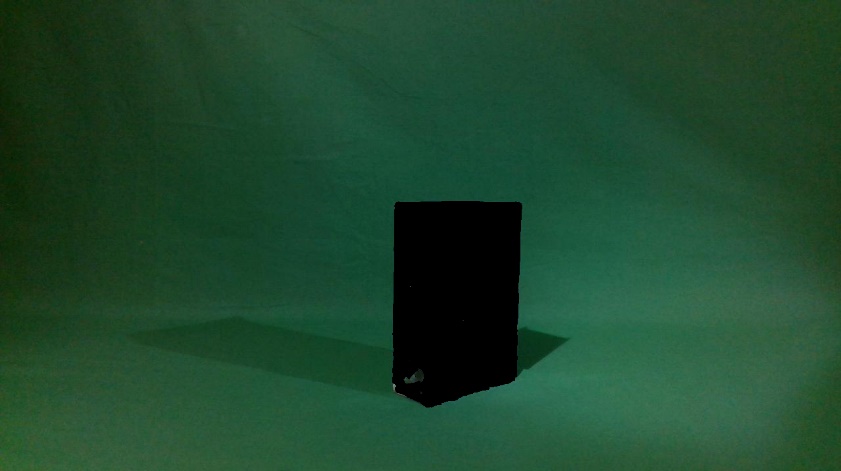
[fig 1]

Graphical user interface, website

Description automatically generated

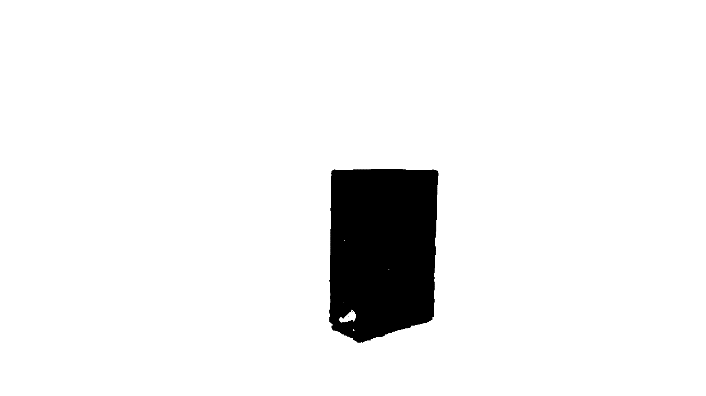
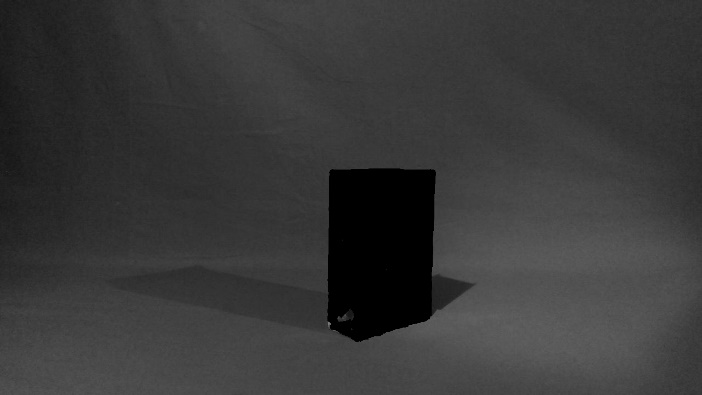
When this mask is removed from the image the result is the green parts of the image as in [fig 2].

[fig 2]

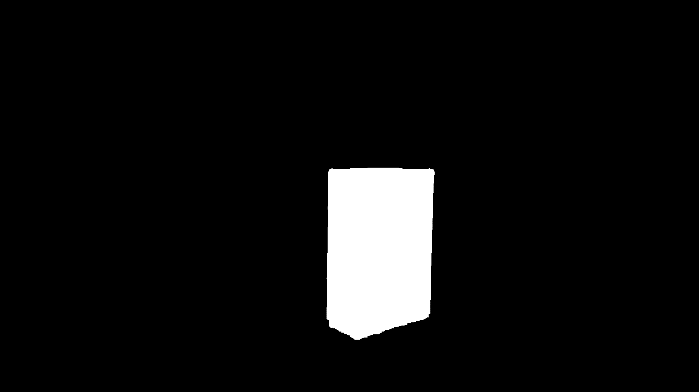


[figs 3-6] shows the grayscaling of the result, thresholding, not operation and closing. Closing is done so that green within the objects in front of the greenscreen is included in this newly generated mask.

[figs 3-6]

A picture containing icon

Description automatically generated



The final step is that every pixel in the passed image is checked. If the corresponding image from the new mask is not white then this pixel is set to black. The result can be seen in [fig 6]

[fig 7]

A picture containing graphical user interface

Description automatically generated

In the case of changeBackground the final step differentiates by painting the object onto a new background instead of a black background [fig 8]. For backgrounds larger than the passed image, the image will retain its original coordinates this can be seen in [fig 9].

[fig 8]

Website

Description automatically generated

[fig 9]

A sign on a grassy hill

Description automatically generated with medium confidence