Image Processing

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Project 1

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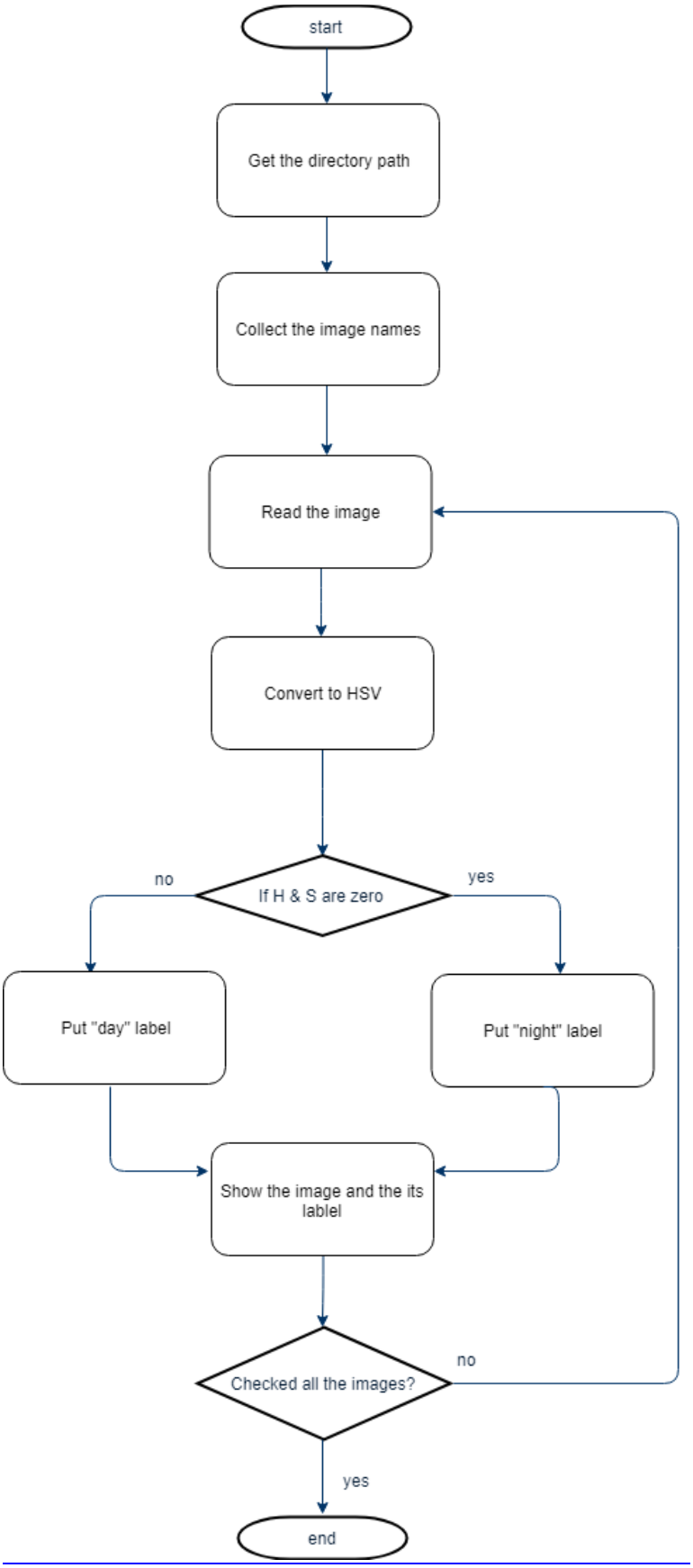
In this project, we developed a program that receives a folder containing images as an input and detects whether each image is taken in the day-time or night-time. Based on (1) using HSV matrix, H values and S values are completely different for a day-image and night-image. Checking the H matrix and S matrix for different images, it was noticeable that the H-values and S-values for night-images are mostly zero.

Therefore, to accomplish our goal we first converted the images from RGB to HSV and then checked the values for H matrix and S matrix to classify the images to “day” or “Night”. The following flowchart is the approached we used

We changed the flowchart provided in (1) based on the characteristics of our dataset (page 2).

References:

1) https://patents.google.com/patent/US9530056B2/en
2) https://www.mathworks.com/matlabcentral/answers/273563-how-to-draw-histogram-of-hsv-image


start
Get the directory path
Collect the image names
Read the image
Convert to HSV
If H & S are zero
no
yes
Put "day" label
Put "night" label
Show the image and the its lablel
Checked all the images?
no
yes
end