Color recognition

Artificial Intelligence Project

Introduction

Color plays an important role in human daily life for recognition. Color plays a crucial role in how we perceive and analyze things around us. Based on primary colors (Red, Green, Blue), a lot of color models were established to quantitatively measure color. There are many important real-world applications in which color detection can be applied, such as skin color detection, traffic light detection, vehicle color recognition, image segmentation, biometric identification, video surveillance etc.

Objectives

Our First Goal

To provide color information for object detection and tracking

Our Second Goal

To assist in quality control and inspection

Our Third Goal

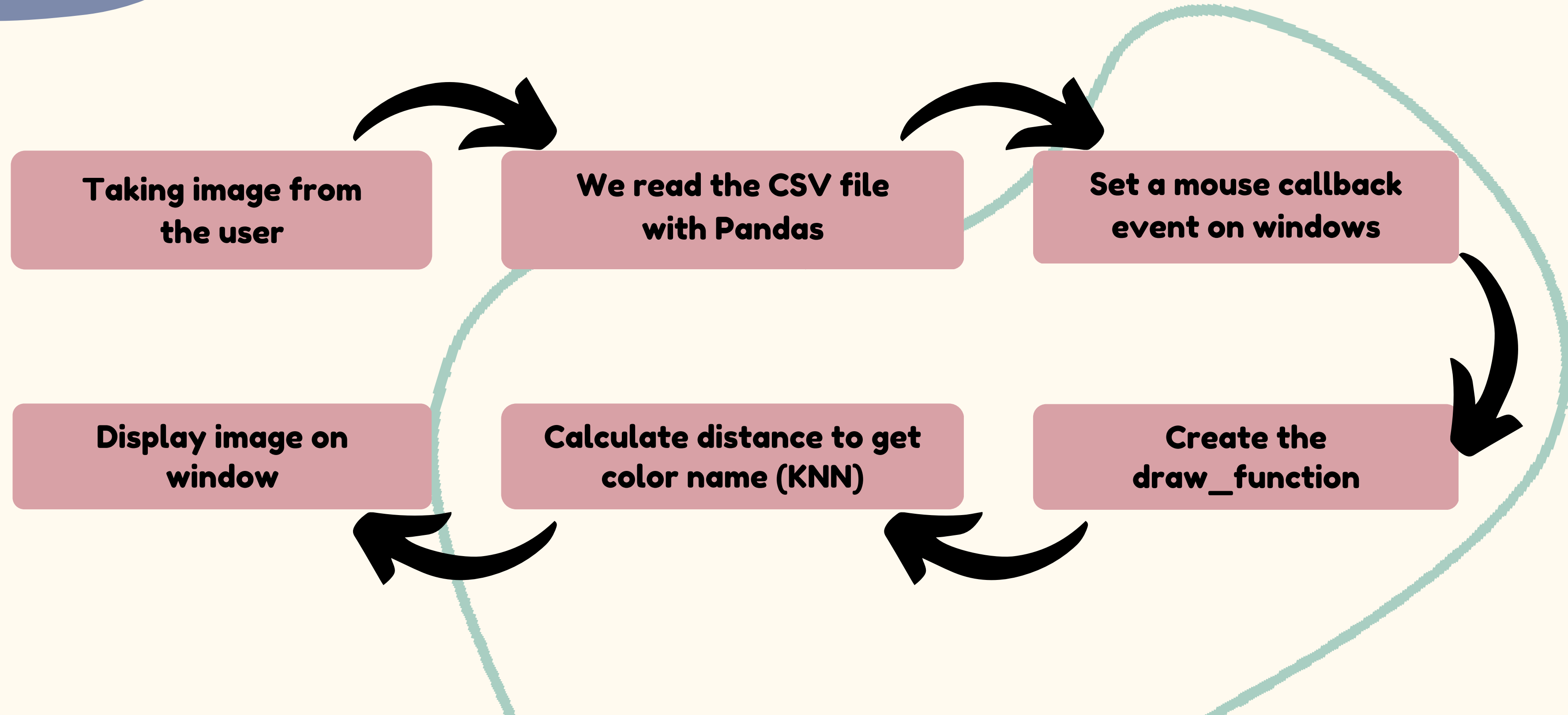To enhance accessibility for color-blind individuals:

Dataset used


```
colors.csv

     1  air_force_blue_raf,"Air Force Blue (Raf)",#5d8aa8,93,138,168
     2  air_force_blue_usaf,"Air Force Blue (Usaf)",#00308f,0,48,143
     3  air_superiority_blue,"Air Superiority Blue",#72a0c1,114,160,193
     4  alabama_crimson,"Alabama Crimson",#a32638,163,38,56
     5  alice_blue,"Alice Blue",#f0f8ff,240,248,255
     6  alizarin_crimson,"Alizarin Crimson",#e32636,227,38,54
     7  alloy_orange,"Alloy Orange",#c46210,196,98,16
     8  almond,"Almond",#efdecd,239,222,205
     9  amaranth,"Amaranth",#e52b50,229,43,80
    10  amber,"Amber",#ffbf00,255,191,0
    11  amber_sae_ece,"Amber (Sae/Ece)",#ff7e00,255,126,0
    12  american_rose,"American Rose",#ff033e,255,3,62
    13  amethyst,"Amethyst",#96c,153,102,204
    14  android_green,"Android Green",#a4c639,164,198,57
    15  anti_flash_white,"Anti-Flash White",#f2f3f4,242,243,244
    16  antique_brass,"Antique Brass",#cd9575,205,149,117
    17  antique_fuchsia,"Antique Fuchsia",#915c83,145,92,131
    18  antique_ruby,"Antique Ruby",#841b2d,132,27,45
    19  antique_white,"Antique White",#faebd7,250,235,215
    20  ao_english,"Ao (English)",#008000,0,128,0
    21  apple_green,"Apple Green",#8db600,141,182,0
    22  apricot,"Apricot",#fbceb1,251,206,177
    23  aqua,"Aqua",#0ff,0,255,255
    24  aquamarine,"Aquamarine",#7fffd4,127,255,212
    25  army_green,"Army Green",#4b5320,75,83,32
    26  arsenic,"Arsenic",#3b444b,59,68,75
    27  arylide_yellow,"Arylide Yellow",#e9d66b,233,214,107
    28  ash_grey,"Ash Grey",#b2beb5,178,190,181
    29  asparagus,"Asparagus",#87a96b,135,169,107
    30  atomic_tangerine,"Atomic Tangerine",#f96,255,153,102
    31  auburn,"Auburn",#a52a2a,165,42,42
    32  aureolin,"Aureolin",#fdee00,253,238,0
    33  aurometalsaurus,"Aurometalsaurus",#6e7f80,110,127,128
    34  avocado,"Avocado",#568203,86,130,3
    35  azure,"Azure",#007fff,0,127,255
    36  azure_mist_web,"Azure Mist/Web",#f0ffff,240,255,255
    37  baby_blue,"Baby Blue",#89cff0,137,207,240
    38  baby_blue_eyes,"Baby Blue Eyes",#a1caf1,161,202,241
```

Flowchart

Taking image from the user	We read the CSV file with Pandas	Set a mouse callback event on windows

Display image on window	Calculate distance to get color name (KNN)	Create the draw_function

Fire Engine Red R=211 G=27 B=35

Glaucous R=85 G=132 B=188

Dark Orchid R=147 G=62 B=192
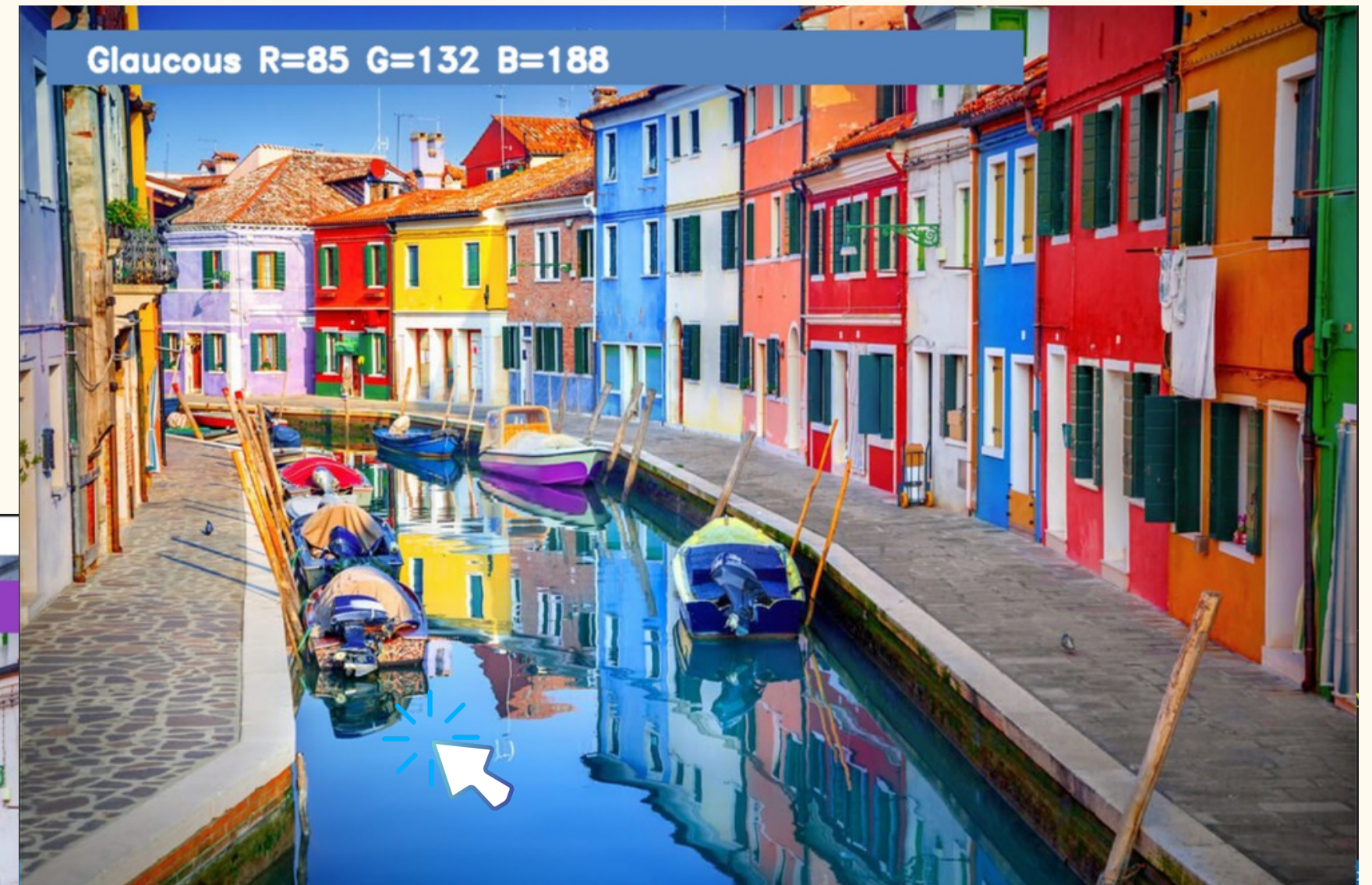
Results...

Thank you!

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