



Vivekanand Education Society's Institute of Technology

(Affiliated to University of Mumbai, Approved by AICTE & Recognized by Govt. of Maharashtra)

PYTHON MINI PROJECT: COLOR DETECTION GROUP NO. 11

Collaborators:-

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Subject Teacher:- Mrs. Lifna C.S.

Subject/Course:- Skill Based Lab Course: Python Programming

Project Description:-

This project is about developing a color detection system using OpenCV and NumPy in Python. The system can identify and differentiate between different colors in an image or video stream.

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Program Flow

The project captures and processes image or video data using the OpenCV library. NumPy library performs image operations such as filtering, thresholding, and segmentation. The system then identifies the presence of different colors and their locations in the image or video stream.

Packages / Libraries

OpenCV and *NumPy* libraries are used in the project.

Github

https://github.com/Complexlysimpley/PYthon_MINI_Project

Output

The system provides color information in the form of a Rectangle output with text written on top.



Conclusion

Color detection using OpenCV and NumPy in Python is an effective way to identify and differentiate between different colors in real-time. The system has practical applications in various industries and can provide valuable information for decision-making and automation.



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Applications

- Practical applications in *object detection* and *tracking*, *traffic monitoring*, *industrial automation*, *color-based sorting*, and *grading of products* in the food and *agriculture industries*.
- In *traffic monitoring*, the system can be used to detect and track different color vehicles or traffic signals.
- In *industrial automation*, the system can be used to identify the presence of different colors in products and sort them accordingly.
- *Research applications*, such as in the study of color-based behaviors of animals or plants.

Findings

The system can capture and process video streams in real-time, which is crucial in applications such as traffic monitoring, where accurate and fast detection of different colored vehicles or traffic signals is necessary.

Future scope

The accuracy and speed of color detection can be enhanced by incorporating machine learning algorithms to enhance performance.

Moreover, the system can be integrated with other computer vision techniques such as object detection and tracking to provide more comprehensive analysis of the image or video stream. The system can also be extended to identify more complex patterns and shapes beyond simple color detection