**Latthe Education Society’s Polytechnic, Sangli**

Department of computer engineering

An

Micro project proposal

Of

Sub**: Programming in Python**

Title:-**To detect objects using Colour Segmentation**

Submitted by

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| --- | --- | --- |
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**1.0 Introduction:**

OpenCV was started at Intel in 1999 by Gary Bradsky, and the first release came out in 2000. Vadim Pisarevsky joined Gary Bradsky to manage Intel's Russian software OpenCV team. In 2005, OpenCV was used on Stanley, the vehicle that won the 2005 DARPA Grand Challenge. Later, its active development continued under the support of Willow Garage with Gary Bradsky and Vadim Pisarevsky leading the project. OpenCV now supports a multitude of algorithms related to Computer Vision and Machine Learning and is expanding day by day.

In this project the object detecting will be implemented. If you want to detect any colourobject in a video then you can detect using this project

**2.0 Aim of project:**

* To detect an colour object
* To acquire the knowledge HSR,CV2

**3.0Intended course outcome**

* Develop a python program to demonstrate the use of operators
* Perform operation on data structures in python

**4.0Literature Review:-**

* <https://docs.opencv.org/master/d0/de3/tutorial_py_intro.html>

From above mentioned website we learned about the CV2. OpenCV-Python makes use of **Numpy**, which is a highly optimized library for numerical operations with a MATLAB-style syntax. All the OpenCV array structures are converted to and from Numpy arrays. This also makes it easier to integrate with other libraries that use Numpy such as SciPy and Matplotlib.

* <https://stackoverflow.com/questions/10948589/choosing-the-correct-upper-and-lower-hsv-boundaries-for-color-detection-withcv/48367205#48367205>  
    
  from above mentioned website we understood about choosing the correct upper and lower HSV boundaries for colour detection

**5.0 Proposed Methodology:-**

* **Libraries** :( CV2, numpy)

OpenCV-Python makes use of **Numpy**, which is a highly optimized library for numerical operations with a MATLAB-style syntax. All the OpenCV array structures are converted to and from Numpy arrays. This also makes it easier to integrate with other libraries that use Numpy such as SciPy and Matplotlib.

* **Taking** **each frame:**

Take each frame to read the video

* **Convert BGR to HSV:**

In BGR the colours will not be properly seen during the

video Instead of using HSV has been used

* **Defining the range of colour in HSY:**

To detect the colour object the colour combinations must have to choose

* **Threshold the HSV image to get only selected colour :**

In this phase the only selected colour object will be shown

* **Bitwise AND mask and original image:**

Result will be display in another video and also original video

**6.0 Resources used**

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| **Sr. No** | **Name of the Resource/Material** | **Specifications** | **Remarks** |
| 1. | Computer System | Intel ® Core ™ i3-6402P CPU @ 2.80 GHz  RAM – 6GB 64 bit OS | - |
| 2. | Software | Pycharm 2018 edition | - |
| 3. | Other Resources Used | Printer,Google Chrome | - |