e-Yantra Robotics Competition (eYRC - 2018)
OpenCV Python

Introduction

OpenCV is an open source computer vision and machine learning software library. The library has more than 2500 optimized algorithms, which includes a comprehensive set of both classic and state of the art computer vision and machine learning algorithms. These algorithms can be used to detect and recognize faces, identify objects, track moving objects, stitch images and lot more. It has C++, C, Python, Java and MATLAB interfaces and supports Windows, Linux, Android and Mac OS. OpenCV-Python is the Python API of OpenCV. It combines the best qualities of OpenCV C++ API and Python language. Libraries like Numpy, SciPy, Matplotlib in OpenCV-Python makes it an appropriate tool for fast prototyping of computer vision problems.

Learn OpenCV-Python from the following tutorials:

- Introduction to OpenCV [Click Here]
- GUI Features in OpenCV [Click Here]
- Core Operations - Basic and Arithmetic Operations on Images [Click Here]
- Image Processing in OpenCV - Changing Color spaces, Image Thresholding, Contours in OpenCV [Click Here]

For completing Task1.1 you need to learn the following basic image processing techniques in OpenCV-Python from the above given tutorial links:

- Reading an image, displaying it and saving it back
- Reading a video, displaying it and saving it back
- Capture images from camera and displaying them
- Writing video to a file
- Drawing different geometric shapes
- Image properties, splitting and merging images
- Arithmetic Operations on Images like addition, subtraction, bitwise operations etc.
- Converting images from one color-space to another, like BGR-Gray, BGR-HSV

NOTE: Image Processing tutorials created by e-Yantra are also available on the portal under the **Resources** tab.