**Color Detection Using OpenCV Python Project**

OpenCV is a Computer Vision library. It is a collection of C functions with a few C++ classes that implement popular Image Processing and Computer Vision algorithms. Computer vision is the science that means to give a comparative, if not better, capacity to a machine or PC. Computer vision is worried about the programmed extraction, investigation and comprehension of valuable data from a single picture or a grouping of pictures. Some of the basic image processing capabilities include filtering, edge detection, corner detection, sampling and interpolation, color conversion, morphological operations, histograms and many more. Color detection using OpenCV has many advantages like, it allows the detection of a specific color in a livestream video content. In this OpenCV color detection system there are four major modules, activated webcam, scan object, match frame parts and system results. Users can open webcam by clicking the webcam button. Then the algorithm analysis the pattern of the framed part of webcam. Pattern is matched with defined color pattern by RGB color model. If the pattern matched with the potential pattern of RGB color model then the system results with the correct output.

* **Modules:**

The system comprises of 4 major modules as follows:

* **Activate Webcam:**
  + User opened the webcam by clicking button on screen
* **Scan object part within the camera frame:**
  + Algorithm analysis the pattern of framed part.
* **Matching framed part:**
  + Pattern matched with defined colour pattern by rgb colour model
* **System result:**
  + If pattern matched with potential pattern of rgb colour model then system output the correct result

##### **Project Lifecycle:**

##### **Description**

The waterfall Model is a linear sequential flow. In which progress is seen as flowing steadily downwards (like a waterfall) through the phases of software implementation. This means that any phase in the development process begins only if the previous phase is complete. The waterfall approach does not define the process to go back to the previous phase to handle changes in requirement. The waterfall approach is the earliest approach that was used for software development.

* **Hardware Requirement:**
* i3 Processor Based Computer or higher
* Memory: 1 GB RAM
* Hard Drive: 50 GB
* Monitor
* Internet Connection
* **Software Requirement:**
* Windows 7 or higher
* Python
* Django
* MySQL database
* **Advantages**
* The system is user-friendly and has simple interface.
* Can be used in manufacturing company
* **Limitation**
* Data need to be entered properly otherwise, outcome may won’t be accurate.
* **Application**
* This system can be used by the multiple peoples to get the counselling sessions online.