International Journal of Advanced Research Trends in Engineering and Technology (IJARTET)
Vol. 1, Issue 1, September 2014

Implementation of Live Video Cartooning Using Thresholding Technique in YUV Format

K. Martin Sagayam[1], Nitin John James[2], Hudson John[3], Dan Thomas Jarard[4]
Assistant Professor, Electronics and Communication Engineering, Karunya University, Coimbatore, India[1]
UG Students, Electronics and Communication Engineering, Karunya University, Coimbatore, India[2, 3, 4]

Abstract: The paper discussed here deals with inducing cartoon like features to an input video using DSP processor (Texas Instrument product, TMS3206416). The basic process involved is taking input, a color video which is to be converted into a cartoon like video in DSP board can be displayed on VM3224K2 Daughter kit (LCD). VM3224Daughter Kit is embedded with DSK6416 Kit to display the output video. The conversion process is carried out in the YUV colour format. Converting in the YUV format is advantageous because applying thresholding technique to the intensity component (Y') of the video can render a cartoon like appearance to the video as the YUV colour model is based on human perception. Only the intensity component of the video in YUV format is modified as the YUV colour model allows apparent changes in the colour perception without actually altering the chrominance component of the video. Suitable thresholding techniques; single level or multi level thresholding technique can be used to get the desired effect. YUV colour model has three components namely Y, U and V. 'Y' is the intensity component whereas 'U' and 'V' are chrominance components. As this colour model facilitates apparent change in colour by simply varying the intensity component it is a very simple and intuitive technique to convert an input video to a cartoon like video. In order to observe the quality and suppleness of the algorithm various simulations in image level using different techniques has been compared with the proposed algorithm in MATLAB software. The proposed algorithm namely thresholding technique in YUV format were well implemented practically on our hardware (TMS6416 kit). Implementation of algorithm has been carried out in C-programming language using CCstudio v3.1 and various simulations have been carried out in MATLAB.

Keywords: Video Cartooning, Cartoonized, Thresholding, YUV Colour Model, TMS3206416, VM3224K2 Kit, CC Studio