Machine Vision Application by using iWave Cyclone V Soc Development Kit

iWave Cyclone V Soc Development kit

FPGA

HPS

Pre-processing

Frame Buffer

Image Processing Algorithms

Video Mixer

Frame Buffer

Frame Buffer

Post Processed image

Blemish Detection Output on LCD

QT GUI Application

QT GUI

Pre Processed image

Camera

Object
Description

- Image will be captured from camera
- The captured image will be passed to Pre-processing logic (De-interlacer, Chroma re-sampler, Color space conversion, Subtract background and Pre filter)
- Updated the pre-processed image in FPGA Frame Buffer
- HPS access the pre-processed image from FPGA Frame Buffer
- Image processing Algorithms will be applied on the Pre-processed image to detect the Blemish region
- The Post-processed image will be updated back to Frame Buffer
- Post-Processed image results will be sent to QT GUI Application
- GUI application will updates the result in QT frame buffer
- Finally Post processed image and GUI application results are mixed in FPGA Video Mixer IP
- The Mixed image will then be displayed in 800x480 LCD display