README

The zipped folder "**Session3_Project1_DAN**.zip" contains 1 folder '**Code**'.

In '**Code**', there are 3 folders-

- C,
- Hybrid,
- Matlab Scripts.

In '**C**' folder, there are 4 folders-

- Histogram_Equalization_C,
- Threshold_C,
- Grayscale Quantization_C,
- Transformation_C

In '**Hybrid**' folder, there are 4 folders-

- Histogram_Equalization_Hybrid,
- Threshold_Hybrid,
- Grayscale Quantization_Hybrid,
- Transformations_Hybrid

In '**Matlab Scripts**' folder, there are 3 folders-

- Hist,
- Quantization and
- ThresandTransf

A. Histogram Equalization (For both C or Hybrid)

CodeWarrior

- ➢ Go to **VMware Workstation 12 Player**>**Windows7**>**Start**>**Freescale CodeWarrior IDE**
- ➢ Download the zipped folder "**Session3_Project1_DAN**.zip" and unzip it in your preferred directory (say '**Documents**')
- ➢ Go to **CodeWarrior IDE** icon and double-click to enter.

(For C)

- ➢ In CodeWarrior, go to **File>Open>** Go to **Documents>Session3_Project1_DAN>Code>C>Histogram_Equalization_C>CodeTemplate>rtimage>rtimage.mcp** and click **Open.** Then the Processor Expert should open with the file.

(For Hybrid)

- ➢ In CodeWarrior, go to **File>Open>** Go to **Documents>Session3_Project1_DAN>Code>Hybrid>Histogram_Equalization_Hybrid>CodeTemplate>rtimage>rtimage.mcp** and click Open. Then the Processor Expert should open with the file.
- ➢ Go to **Processor Expert> Generate Code** for 'rtimage.mcp'

- ➢ Go to **Edit>sdm settings>Remote Debugging**> Make sure it is **56800E Hardware Simulator**
- ➢ Go to **Project>Make**
- ➢ Then **Project>Run** two times.

MATLAB

- ➢ In **Windows 10**, go to **MATLAB 2016b**
- ➢ Download the zipped folder "**Session3_Project1_DAN.zip**" and unzip it in your preferred directory (say 'Desktop')
- ➢ In MATLAB2016b, go to **Open>Session3_Project1_DAN>Matlab Scripts>Hist**>Select the files-**init_serial.m** and **capture_frames_histogram.m** and click open. Both the files should open on your window.
- ➢ As the CodeWarrior program is running parallely, Run init_serial.m and then run capture_frames_histogram.m.

Note: If there is an error of undefined variable 's1' in fopen(s1); type 'fclose(instrfind)' and then run init_serial.m and then run capture_frames_histogram.m.

- ➢ The Input image and histogram and Output Equalized image and histogram should be seen.

B. **Thresholding (For both C or Hybrid)**

CodeWarrior

- ➢ Go to **CodeWarrior IDE** icon and double-click to enter.

(For C)

- ➢ In CodeWarrior, go to **File>Open>** Go to **Documents>Session3_Project1_DAN>Code>C>Threshold_C>CodeTemplate>rtimage>rtimage.mcp** and click Open. Then the Processor Expert should open with the file.

(For Hybrid)

- ➢ In CodeWarrior, go to **File>Open>** Go to **Documents>Session3_Project1_DAN>Code>Hybrid>Threshold_Hybrid>CodeTemplate>rtimage>rtimage.mcp** and click Open. Then the Processor Expert should open with the file.
- ➢ Go to **Processor Expert> Generate Code for 'rtimage.mcp'**
- ➢ Go to **Edit>sdm settings>Remote Debugging>** Make sure it is **56800E Hardware Simulator**
- ➢ Go to **rtimage.c**, and in void main(), uncomment the function you want to use.
- ➢ Go to **Project>Make**
- ➢ Then **Project>Run** two times.

MATLAB

- In **WIndows 10**, go to **MATLAB 2016b**
- In **MATLAB2016b**, go to **Open>Session3_Project1_DAN>Matlab Scripts>ThresandTransf** >Select the files-**init_serial.m** and **capture_frames.m** and click open. Both the files should open on your window.
- As the CodeWarrior program is running parallely, Run **init_serial.m** and then run **capture_frames.m**.

Note: If there is an error of undefined variable 's1' in fopen(s1); type 'fclose(instrfind)' and then run init_serial.m and then run capture_frames.m.

- The Input image and Output image with the respective Thresholding should be seen.

C. **Grayscale Quantization (For both C or Hybrid)**

CodeWarrior

- Go to **CodeWarrior IDE** icon and double-click to enter.

(For C)

- In **CodeWarrior**, go to **File>Open> Go to Documents>Session3_Project1_DAN>Code>C>Grayscale Quantization_C>CodeTemplate>rtimage>rtimage.mcp** and click **Open**. Then the Processor Expert should open with the file.

(For Hybrid)

- In **CodeWarrior**, go to **File>Open>** Go to **Documents>Session3_Project1_DAN>Code>Hybrid>Grayscale Quantization_Hybrid>CodeTemplate>rtimage>rtimage.mcp** and click **Open**. Then the Processor Expert should open with the file.
- Go to **Processor Expert> Generate Code for 'rtimage.mcp'**
- Go to **Edit>sdm settings>Remote Debugging>** Make sure it is **56800E Hardware Simulator**
- Go to **rtimage.c,** and change the global variable '***ShiftFactor***' to whichever value you want (1,2,3 or 4).
- Go to **Project>Make**
- Then **Project>Run** two times.

MATLAB

- In **MATLAB2016b**, go to **Open>Session3_Project1_DAN>Matlab Scripts>Quantization** >Select the file-**capture_histogram-quantized.m** and click open. The file should open on your window.

- ➢ As the CodeWarrior program is running parallely, Run **capture_histogram-quantized.m**. As capture_histogram-quantized.m is a **function call**, enter it as '**capture_histogram-quantized(***ShiftFactor***)**' where you can replace '*ShiftFactor'* with the respective value you used in CodeWarrior. Click enter.

Note: If there is an error of undefined variable 's1' in fopen(s1); type 'fclose(instrfind)' and then run init_serial.m and then run capture_frames.m.

- ➢ The Input image and histogram, the Quantized image and histogram (which is shifted to the left), and the Reconstructed Image and histogram should be seen.

D. **Grayscale Transformations (For both C or Hybrid)**

CodeWarrior

- ➢ Go to **CodeWarrior IDE** icon and double-click to enter.

(For C)

- ➢ In **CodeWarrior,** go to **File>Open> Go to Documents>Session3_Project1_DAN>Code>C>Transformation_C>CodeTemplate>rtimage>rtimage.mcp** and click Open. Then the Processor Expert should open with the file.

(For Hybrid)

- ➢ In **CodeWarrior**, go to **File>Open>** Go to **Documents>Session3_Project1_DAN>Code>Hybrid>ransformations_Hybrid>Code Template>rtimage>rtimage.mcp** and click **Open**. Then the Processor Expert should open with the file.
- ➢ Go to **Processor Expert> Generate Code for 'rtimage.mcp'**
- ➢ Go to **Edit>sdm settings>Remote Debugging**> Make sure it is 5**6800E Hardware Simulator**
- ➢ Go to **rtimage.c**, and in void main(), uncomment the transformation function you want to use.
- ➢ Go to **Project>Make**
- ➢ Then **Project>Run** two times.

MATLAB

- ➢ In **MATLAB2016b**, go to **Open>Session3_Project1_DAN>Matlab Scripts>ThresandTransf** >Select the files-**init_serial.m** and **capture_frames.m** and click open. Both the files should open on your window.
- ➢ As the CodeWarrior program is running parallely, Run **init_serial.m** and then run **capture_frames.m**.

Note: If there is an error of undefined variable 's1' in fopen(s1); type 'fclose(instrfind)' and then run init_serial.m and then run capture_frames.m.

- ➢ The Input image and Output image with the respective grayscale transformations should be seen.