Exp. No: 9

Date:

Fuzzy Logic - Image Processing.

Aim:

The aim of implementing fuzzy logic for edge detection is to enhance the robustness and accuracy of edge detection in images by handling uncertainities.

Procedure for fuzzy logic edge detection:

Step 1: Setup the environment

Open matlab: ensure you have access to matlab with image processing toolbox.

Step 2: Import & convert image to grayscale

1) Read the RGB Image
2) Connect to Grayscale.

Step 3: Convert image to double precision data

1) Convert to double

Step 4: Obtain image gradient

1) Define Gradient filter
2) Calculate Gradients
3) Plot image gradients.

Step 5: Define fuzzy inference system (FIS)

1) Create FIS
2) Add Inputs.
3) Define membership function for inputs
4) Add output

5) Define membership functions for outputs.

6) Plot membership function for outputs

Step 6: Specify FIS rules

1) Add rules for FIS

Step 7: Evaluate FIS

1) Evaluate edge detection

Step 8: Plot results

1) Plot original Grayscale Image

2) Plot detected edges.

Result:

Thus the program was successfully executed and the output was verified.