_____Deteksi Tepi

Tujuan

- Memberikan pengertian perlunya dilakukan Deteksi Tepi
- Memberikan contoh macam-macam cara deteksi tepi

Teori Penunjang

Gambar Percobaan

Prosedur Percobaan

1. Percobaan-percobaan berikut merupakan contoh beberapa jenis cara deteksi tepi.
2. Sediakan form dengan bentuk berikut

3. Daftar komponen

    a. PictureBox dengan nama Picture1, isi dengan gambar tertentu

    b. PictureBox dengan nama Picture2

    c. Tombol dengan nama Command1, beri caption "DETEKSI TEPI"

4. Deteksi tepi Robert atau DPCM (Differential Pulse Code Modulation)

```
Private Sub Command1_Click()
```

```
Dim w(400, 400) As Integer
n1 = 0
For i = 1 To Picture1.ScaleWidth Step 15
   n1 = n1 + 1
   n2 = 0
   For j = 1 To Picture1.ScaleHeight Step 15
      warna = Picture1.Point(i, j)
      r = warna And RGB(255, 0, 0)
      g = Int((warna And RGB(0, 255, 0)) / 256)
      b = Int(Int((warna And RGB(0, 0, 255)) / 256) / 256)
      wx = Int((r + g + b) / 3)
      Picture1.PSet (i, j), RGB(wx, wx, wx)
      n2 = n2 + 1
      w(n1, n2) = wx
   Next j
Next i
For i = 1 To n1
    For j = 1 To n2
        If i = 1 Then wx1 = w(i, j) Else wx1 = w(i, j) - w(i - 1, j)
        If j = 1 Then wx2 = w(i, j) Else wx2 = w(i, j) - w(i, j - 1)
        wx = Abs(wx1) + Abs(wx2)
        If wx > 255 Then wx = 255
        Picture2.PSet ((i - 1) * 15 + 1, (j - 1) * 15 + 1), RGB(wx, wx,
wx)
    Next j
Next i
End Sub
```

5. Deteksi tepi cara Prewitt

```
Dim h1(3, 3), h2(3, 3) As Single

Private Sub Command1_Click()
Dim x(500, 500) As Integer
' RGB to Gray
n1 = 0
For i = 1 To Picture1.ScaleWidth Step 15
   n1 = n1 + 1
   n2 = 0
   For j = 1 To Picture1.ScaleHeight Step 15
      warna = Picture1.Point(i, j)
      r = warna And RGB(255, 0, 0)
      g = Int((warna And RGB(0, 255, 0)) / 256)
      b = Int(Int((warna And RGB(0, 0, 255)) / 256) / 256)
      n2 = n2 + 1
      x(n1, n2) = Int((r + g + b) / 3)
      Picture1.PSet (i, j), RGB(x(n1, n2), x(n1, n2), x(n1, n2))
   Next j
Next i
' Proses Filter Prewitt dengan konvolusi
For i = 1 To n1
    For j = 1 To n2
        z1 = 0
        z2 = 0
        For u1 = -1 To 1
            For u2 = -1 To 1
                z1 = z1 + h1(u1 + 2, u2 + 2) * x(i + u1, j + u2)
                z2 = z2 + h2(u1 + 2, u2 + 2) * x(i + u1, j + u2)
            Next u2
        Next u1
        z = Int(Abs(z1 + z2))
        If z > 255 Then z = 255
```

```
        Picture2.PSet ((i - 1) * 15 + 1, (j - 1) * 15 + 1), RGB(z, z,
z)
    Next j
Next i
End Sub


Private Sub Form_Load()
h1(1, 1) = -1: h1(1, 2) = 0: h1(1, 3) = 1
h1(2, 1) = -1: h1(2, 2) = 0: h1(2, 3) = 1
h1(3, 1) = -1: h1(3, 2) = 0: h1(3, 3) = 1
For i = 1 To 3
    For j = 1 To 3
        h2(i, j) = h1(j, i)
    Next j
Next i
End Sub
```

6. Deteksi Tepi cara Sobel

```
Dim h1(3, 3), h2(3, 3) As Single

Private Sub Command1_Click()
Dim x(500, 500) As Integer
' RGB to Gray
n1 = 0
For i = 1 To Picture1.ScaleWidth Step 15
   n1 = n1 + 1
   n2 = 0
   For j = 1 To Picture1.ScaleHeight Step 15
      warna = Picture1.Point(i, j)
      r = warna And RGB(255, 0, 0)
      g = Int((warna And RGB(0, 255, 0)) / 256)
      b = Int(Int((warna And RGB(0, 0, 255)) / 256) / 256)
      n2 = n2 + 1
      x(n1, n2) = Int((r + g + b) / 3)
      Picture1.PSet (i, j), RGB(x(n1, n2), x(n1, n2), x(n1, n2))
   Next j
Next i
' Proses Filter Prewitt dengan konvolusi
For i = 1 To n1
    For j = 1 To n2
        z1 = 0
        z2 = 0
        For u1 = -1 To 1
            For u2 = -1 To 1
                z1 = z1 + h1(u1 + 2, u2 + 2) * x(i + u1, j + u2)
                z2 = z2 + h2(u1 + 2, u2 + 2) * x(i + u1, j + u2)
            Next u2
        Next u1
        z = Int(Abs(z1 + z2))
        If z > 255 Then z = 255
         Picture2.PSet ((i - 1) * 15 + 1, (j - 1) * 15 + 1), RGB(z, z,
z)
    Next j
Next i
End Sub


Private Sub Form_Load()
h1(1, 1) = -1: h1(1, 2) = 0: h1(1, 3) = 1
h1(2, 1) = -2: h1(2, 2) = 0: h1(2, 3) = 2
h1(3, 1) = -1: h1(3, 2) = 0: h1(3, 3) = 1
For i = 1 To 3
```

```
    For j = 1 To 3
        h2(i, j) = h1(j, i)
    Next j
Next i
End Sub
```

Tugas