Based on Sobel Algorithm given here
(Link also useful for horizontal and vertical gradients):
http://edge.kitiyo.com/2009/codes/sobel-core-verilog-module.html

Inputs:

- Gx (horizontal gradient) // signed binary value (11 bits)
  // wire signed [10:0] Gx;
- Gy (vertical gradient) // signed binary value (11 bits)
  // wire signed [10:0] Gy;

Outputs:

- G // 8 bit pixel value
  // wire [7:0] G;

Algorithm:

1. Find absolute values of signed Gx & Gy
   a. abs_gx = (gx[10]? ~gx+1 : gx);
   b. abs_gy = (gy[10]? ~gy+1 : gy);

2. Find sum of Abs_Gx & Abs_Gy
   a. sum = abs_gx + abs_gy

3. Find G
   a. G = (sum[10] | sum[9] | sum[8]) ? 8'b11111111 : sum[7:0]