C:\opencv\build\x64\vc16\lib

opencv\_world4110d.lib

C:\opencv\build\include

D:/FresherXavisTech/Image/

<https://www.youtube.com/watch?v=kJ0ByMdbTso>



**Slide 1:**

Let take a look at how HOUGH TRANSFORM work with the simplest shape, the straight line. Here we have a set of edge in a image. Embedded in the set of edge are any blue point that lie on a straight line. Our goal is to find this line. The line equation is …. If we consider a point on the straight line, example …. We can write …, since xi and yi are known we can rewrite this to a straight line equation in the ab space here. It illustrates all the line pass through the point xi yi when the parameter a and b vary. This concept allows us to consider the problem in 2 spaces. One is the image space and one is parameter space.

**Slide 2:**

Now we will explore how the hough transform can detect a line in the image space by considering the parameter space.

Here is the image space and here is the parameter space.

We known this point corresponds to a straight line in the parameter space. This line in parameter space correspond to all the line that pass through the point xi yi. If we take another point in the image space. We get another line in the parameter space. Note that, two line in the parameter space intersect at a single point (a, b) which correspond to the parameter of the line that contain 2 point in the image space. If we take more point lie on the same straight line we will get more line in the parameter space and all the line intersect at the same point, since the line pass through all of them in the image space. If we take a point that does not lie on the line in the image space. It too create a line in the parameter space, however, this line not pass through the point (a, b) because it doesn’t line on the line with parameter a,b.

So the relationship between the image space and the parameter space is very interesting. A line ….

**Slide:**

In step 4 we will perform the vote operation. Its described here. So what will we do. First

Slide:

In some previous sessions

Now we will consider a single point in the image space. We have the edge direction. So the center of the circle, the circle at that point lie on must lie along the edge direction. We don’t know which side of the edge lie