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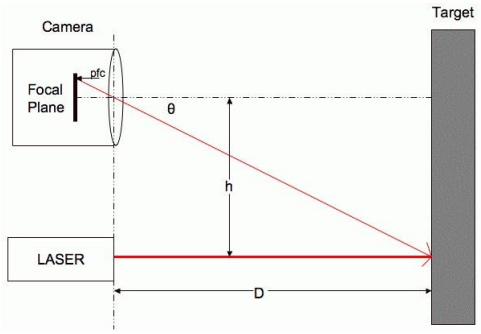
Unit -A new idea to change the way you wear clothes without ever having to worry about your size or fit with this technology no matter how you are, you can still wear fitting clothes. The basic idea behind this technology is **Digital Image Processing**. we are processing Digital image using **OpenCV** (import cv2) which is based on **Python** coding.
The OpenCV which is a predefined imported file has the ability to scan the image by using a secondary device such as a webcam or any such device, the image which is captured by using the webcam is then processed to analyze.
The person's body is then subjected to a particular frequency of laser in this case we are using a low frequency red laser. Which is much below the frequency that can harm humans. The code scans through the image which is processed by default as 640 x 480 image (that's 640 on the x-axis and 480 on the y). The Python line of code scans though the whole array only looking at the third element of the third dimension(the R of RGB). If any of those pixels contain a high red number (the highest is 255, I just picked 237 by trial and error), num will be true (1), if the pixel does not have a high red content num will be false (0). Using this Technology, we can replace the need for ever going to a tailoring or to an altering person changing the face of clothing forever. By just making the person pass through a gate way for a few seconds we can be able to project the entire physical structure of that particular person for providing the measuring requirements.

Calculating distance using this method works off basic trigonometry:



Webcam and laser trigonometry

$$\theta = pfc * rpc + ro$$

Where:

pfc = Number of Pixels From Center of Focal Plane

rpc = Radians per pixel pitch

ro = Radian offset (compensates for allignment errors)

$$D = \frac{h}{\tan\theta}$$

Screen Shots

test1.py - C:\Python27\test1.py

File Edit Format Run Options Windows Help

```
## program written by Shane Ormonde 7th sept 2013
## updated on 25th January 2014
## calculates the distance of a red dot in the field of view of the webcam.


import cv2
from numpy import *
import math

#variables
loop = 1

dot_dist = 0

cv2.namedWindow("preview")
vc = cv2.VideoCapture(1)



if vc.isOpened(): # try to get the first frame
    rval, frame = vc.read()

else:
    rval = False
    #print "failed to open webcam"


if rval == 1 :

        while loop == 1:
                        cv2.imshow("preview", frame)
                        rval, frame = vc.read()
                        key = cv2.waitKey(20)
                        if key == 27: # exit on ESC
                                loop = 0
                        num = (frame[...,...,2] > 236)
                        xy_val =  num.nonzero()

                        y_val = median(xy_val[0])
                        x_val = median(xy_val[1])
```

Ln: 1 Col: 0

Ask me anything

2:55 PM
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