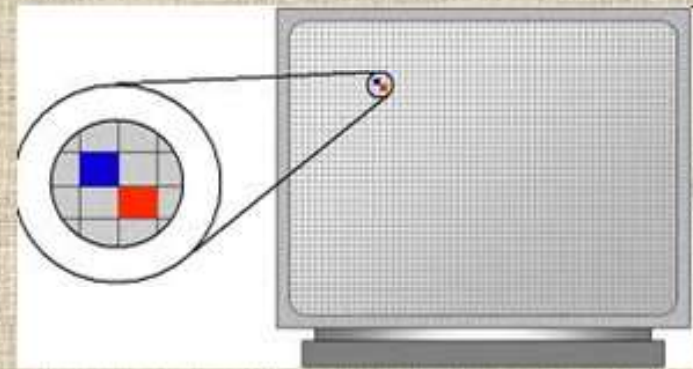


Gauging in Machine Vision

- **Pixels are the building blocks of image in CCD camera.**
- **One may consider one pixel as the least count in terms of measurements. Though with the software capability, it is possible to achieve sub pixel levels.**
- **Calibration charts & tools enable us to translate the pixel information into real world units i.e., mm, inches etc.**
- **The object distance has to be maintained accurately.**
- **The measurement system accuracy is roughly taken as 1/10 of Measurement accuracy required, though this varies with different QA standards.**

Example: For a camera with a resolution of 640 X 480 to measure an object of 64mm X 48mm then the accuracy would be 64/640 that is 0.1mm represented by one pixel.



In-Sight Explorer - admin - [...js5100_0137af - Brakes Solingar.job]

File Edit View Insert Format Image Sensor System Window Help

Arial 9 B I

C30 = StatusLight(\$R423,"Pass","Fail","",8,7,0)

6867/68 Warpage Inspection

	Result
Out Bend Sts	Pass
Beam Bend Sts	Fail
Over all result	Fail

Beam Bend

Pixel Value @ (460,337) = 93

0.0 ms Offline

Start In-Sight Explorer - ad... P_Brakes Solingar_OK2.j...

5:26 PM

In-Sight Explorer - admin - [..._is5100_0137af - Spreadsheet View]

File Edit View Insert Format Image Sensor System Window Help

Anal 12 C70 F63

KASIMARI HOOK INSPECTION

ANGLE MEASUREMENT: 60.738 deg.

EXT Parallel Line

Arc Centre

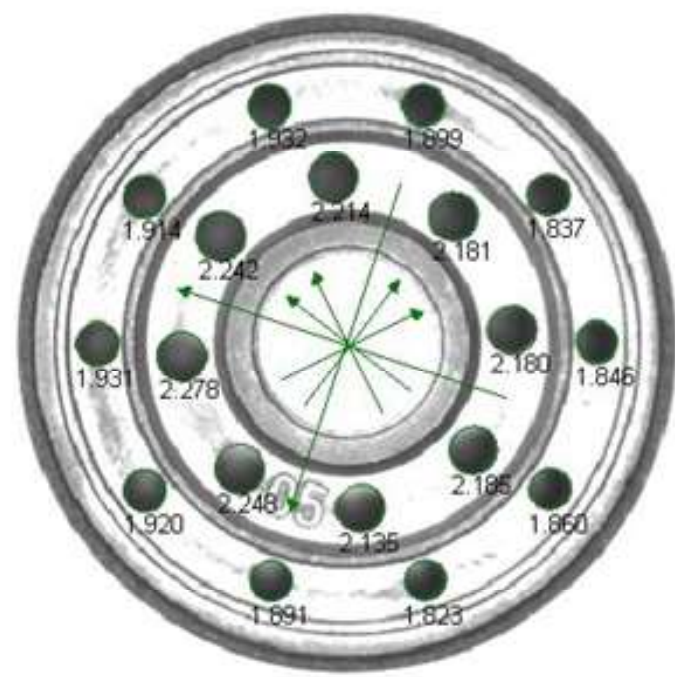
202.3 ms Offline

start KASIMARI In-Sight Explorer - ad... P_HOOK4 - Paint 12:00 PM

In-Sight Network

- In-Sight Sensors
 - __is5100_0137af__
 - ARCEE-0DEB533CA

MANDO PISTON INSPECTION	
Comp Type:	Black Model A
Inspection Sts:	● PASS
No: of outer holes:	10.000
No: of inner holes:	8.000



PC [Sensor Selection Icons] [Navigation Icons]

Pixel Value @ (370,383) = 255

1374.0 ms Offline

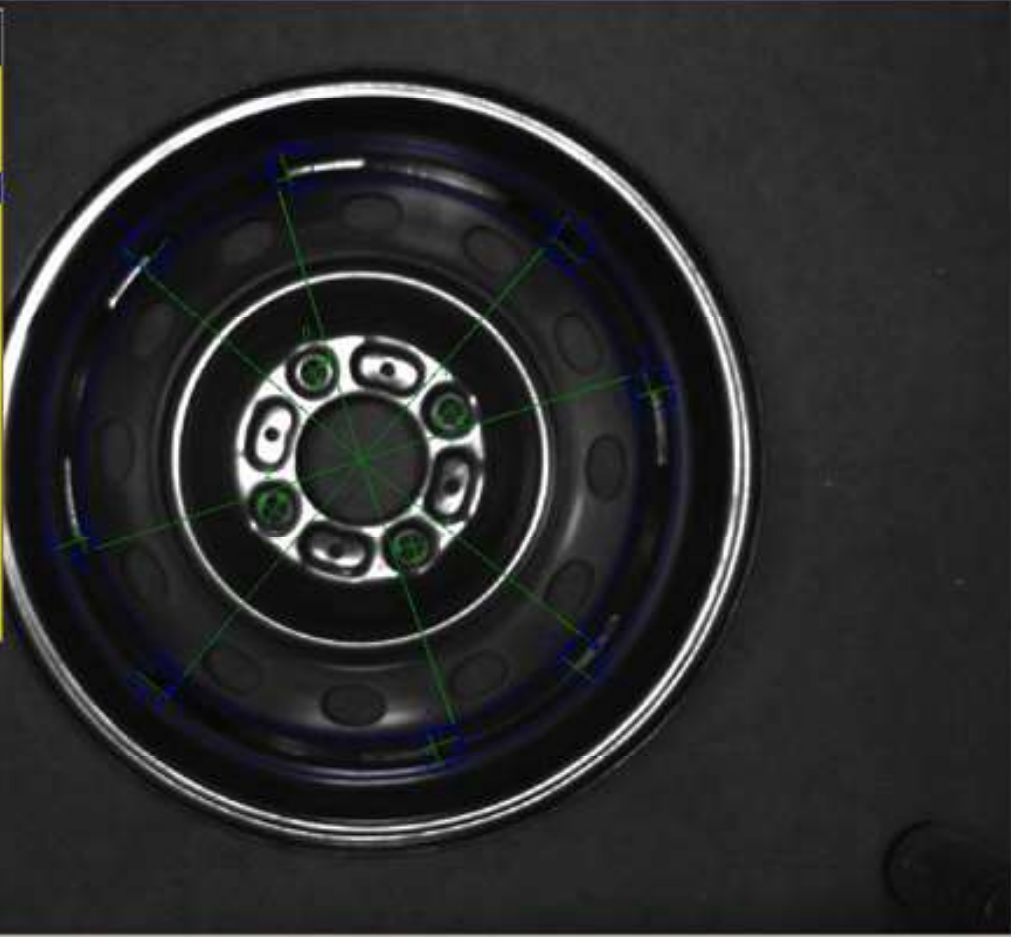
In-Sight Explorer - admin - [ARCTE_LAB1 - Job View]

File Edit View Insert Format Image Sensor System Window Help

DS0 - StatusLight(\$L\$67,"Pass","??","Fail",0.0,0)

SSWL Wheel Bot Inspection

Test	Value	Result
Weld Beed Lengths:		
Weld Arc Length 0	89.652	Pass
Weld Arc Length 1	#ERR	Fail
Weld Arc Length 2	#ERR	Fail
Weld Arc Length 3	87.130	Pass
Bolt 0 Reference:		
Weld 0 Start Angle	-14.487	Pass
Weld 0 End Angle	19.421	Pass
Bolt 1 Reference:		
Weld 1 Start Angle	-16.183	Pass
Weld 1 End Angle	#ERR	Fail
Bolt 2 Reference:		
Weld 2 Start Angle	-14.773	Pass
Weld 2 End Angle	#ERR	Fail
Bolt 3 Reference:		
Weld 3 Start Angle	-17.286	Pass
Weld 3 End Angle	14.502	Pass



(280,308) = 45

Offline

start Test Results 24-04-0... In-Sight Explorer - ad... SSW_BOT_Resp_IPG...

5:07 PM

In-Sight Explorer - admin - [__is5100_0137af__ - Valeo_Clutch.job]

File Edit View Insert Format Image Sensor System Window Help

Address: E193 - StatusLight(\$I\$193,'PASS','FAIL','',8,7,0)

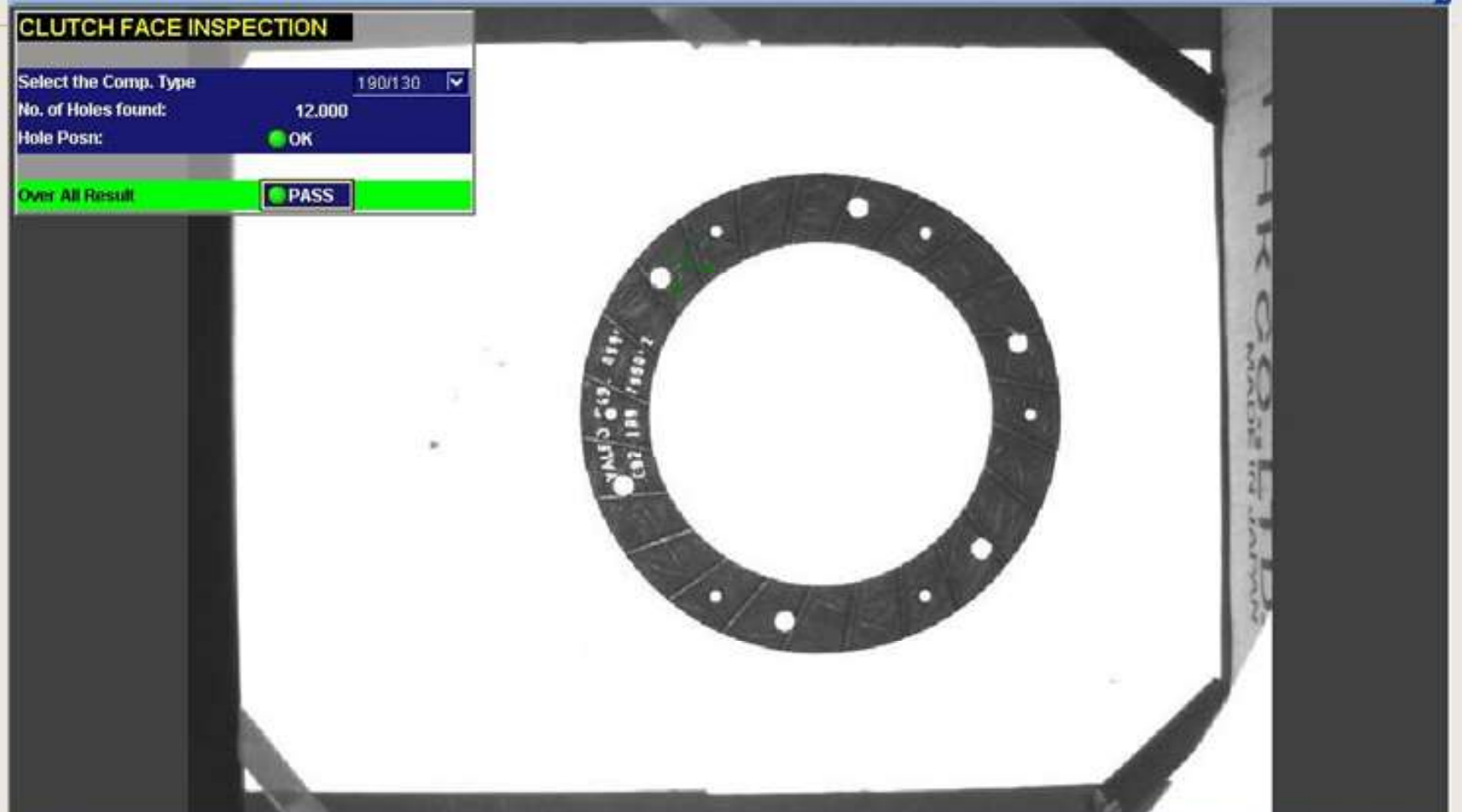
CLUTCH FACE INSPECTION

Select the Comp. Type: 190/130

No. of Holes found: 12.000

Hole Posn: ● OK

Over All Result: PASS



510.4 ms Offline

start In-Sight Explorer - ad... P_190_130_Pass2 - P... 11:39 AM

In-Sight Explorer - admin - [ESP-T4-2 - ism1403 - F:\ROAD SHOW 2010\tn MCB Clip\HIGH RES\TTN_MCB CLIP.job]

File Edit View Insert Format Image Sensor System Window Help

R1 = TITAN MCB CLIP INSPECTION

TITAN MCB CLIP INSPECTION

Center Clip:	2.928 mm	● PASS
Two END Clip	2.146 mm	● PASS



Pool Value @ (1043,219) = 20

11.6 ms Offline

start | HDG1 RES | Backups | In-Sight Explorer - ad... | PRINT 2.JPG - Part | 3:14 PM