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XC1000 Component Parts Counting System

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The XC1000 Component Parts Counting System is used for the rapid counting of the reel-type material in the SMT industry. Material types include all RC materials and IC materials. It is based on the high industrial 4.0 standard, intelligent modular design, and can be used for 7” to 15” Including, Cut tape, JDEC trays, Sealed bags. It is equipped with artificial intelligence deep learning software, cloud update system.

With X-ray imaging technology, it can detect the production materials and obtain image information. The image will be automatically counted by SEAMARK’s self-developed image algorithm, obtain the actual quantity of materials, and classify the number of materials at the same time. These data and information can be interfaced with the customer MES system.

Technical Parameters

Equipment	Dimensions	0.8M*1.26M*1.95M
	Weight	802kg
	Power supply	C220V±10% 50/60Hz
	Total power	Max 1.5KW
	Loading	Manually
X-Ray Tube	Brand	America VJ
	Max tube voltage	80 KV
	Max tube current	700 μA
	Focal spot size	30 μm
Detector	Brand	Germany IRay
	Imaging area	427mm*427mm
	Pixel size	139μm
	Pixel matrix	3072*3072 pixels
	Gray scale	16 bits
Reel Inspection	Max size	15inch
	Min size	7inch
	Max thickness	85 mm
	Min thickness	3 mm
	Min parts size	01005
Others	Speed	Appr. 15s/reel
	Accuracy	99.9%
	Barcode scanning	Can be equipped with barcode, QR code scanner
	Label printing	Can print material code and counting results in real time
	Parts support	Resistance, capacitance, inductance, crystal, LED, diode, triode, multi-pin IC, etc.
	Software	Support for automatic saving of SPC statistics, images and results in any format
	Radiation	1 μSv/Hour

Computer Configuration

CPU	≥ i7-7700K
Memory	≥ 8GB
Storage	128G SSD+4TB HDD
WIFI support	

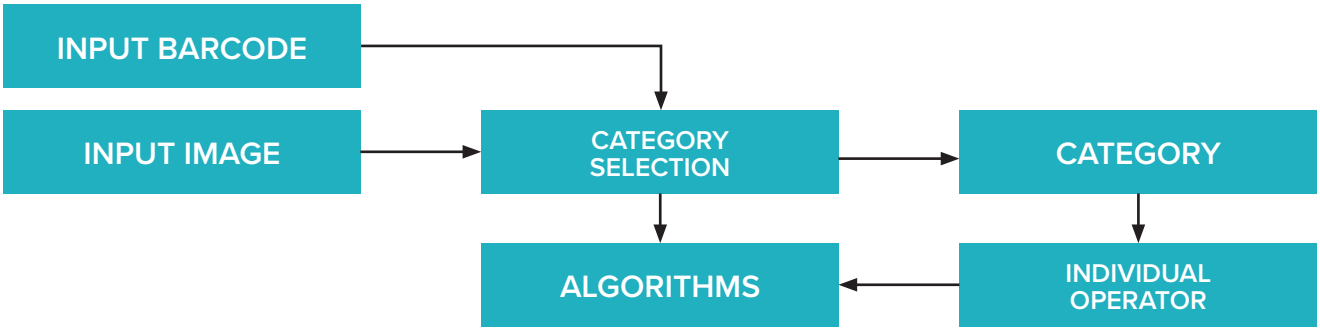
Key Features

Deep Learning based fully automated counting algorithm.	No parts teaching procedure, user can directly use it.
Accumulated counting database that shared with all machines.	The more data, the more reliable, and the more accurate.
Support four 7inch Reels counting one time.	Support random positions, excellent user experience.
Continuously algorithm/database updating and support.	Extremely reliable/repeatable based on Deep Learning.

Why we can do better than others

- Other companies give user too much work, counting is based on User's ability.
- We use cloud/AI to centralize image data, counting is based on experts and deep learning.
- Other companies' users barcode as a link between algorithm and parts.
- We use AI to recognize parts and apply algorithm automatically.
- Other companies cannot put counting data together, algorithm is not sharable.
- We use centralized database to share all counting algorithm/information for each user.

Other Companies



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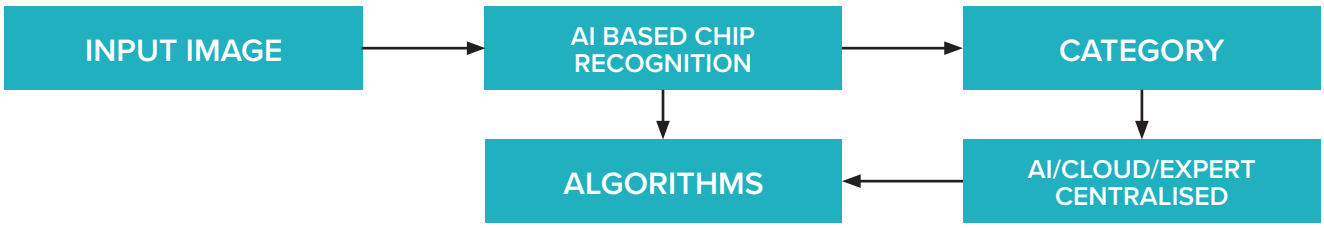
Seamark method



Test Results

The counting time and accuracy of various sizes of trays are as follows:

No	Parts size	Reel size	Qty	Accuracy	Time
1	01005	7”	20000PCS	99.9%	12S-15S
2	0201	7”	10000PCS	99.9%	12S-15S
3	0402	7”	10000PCS	100%	12S-15S
4	0603	7”	5000PCS	100%	12S-15S
5	0402	15”	50000PCS	100%	12S-15S
6	10x10	15”	500PCS	100%	12S-15S

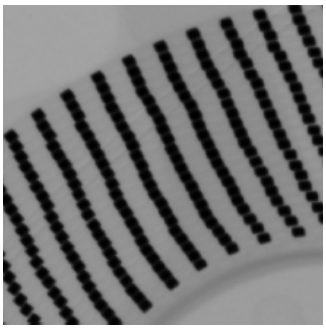
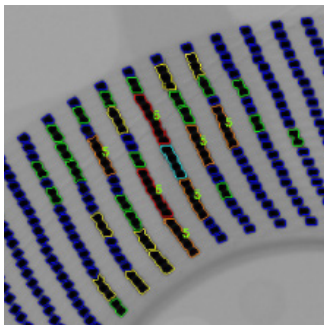
Depending on the amount of material, the time efficiency will vary slightly. The efficiency will be improved as the cloud or software database updates.

Artificial Intelligence Cloud Database Introduction

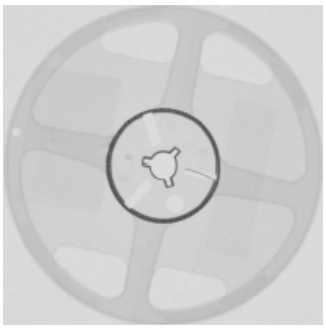
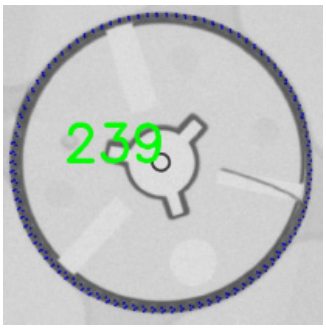
The equipment comes with an artificial intelligence cloud database function.
Each equipment’s tray image will be automatically stored in the cloud database through the network every day. Engineers will optimize these images and then update to the database every month, to increase the counting accuracy. As time goes by, the accuracy will be higher and higher until 100%.

When the parts used by the customer have existed in the database, they can be counted directly, no need to build the data of the reel again, so the efficiency and accuracy is higher.

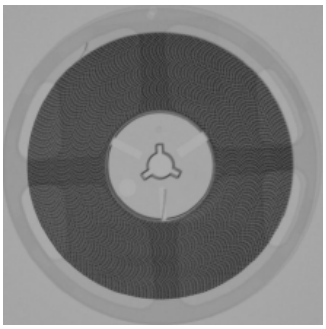
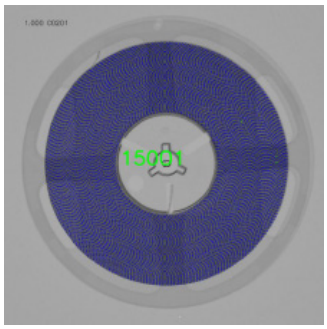
Sample Images

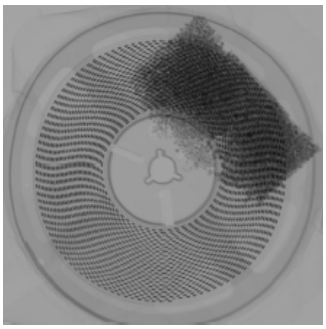
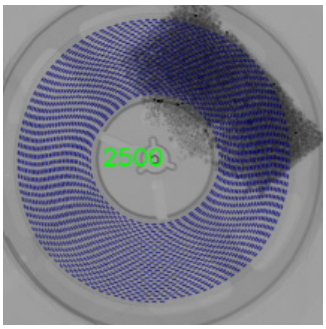
(AUTO) Advanced Image Breaking Algorithm --- to handle connected chips (Tall)

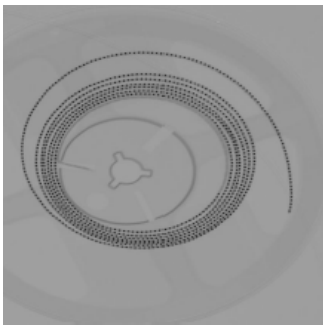
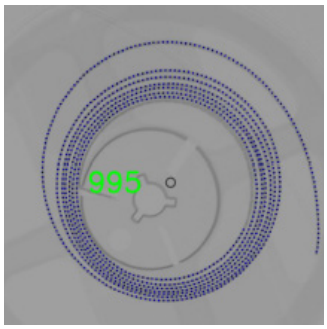
(AUTO) A small amount parts are countable (0201)

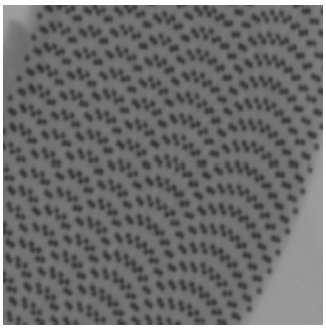
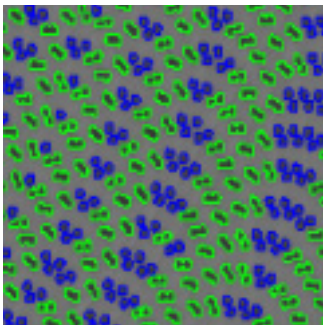
(AUTO) Full Reel (0201)

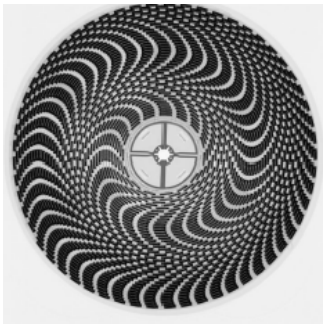
(AUTO) Moisture barrier bag

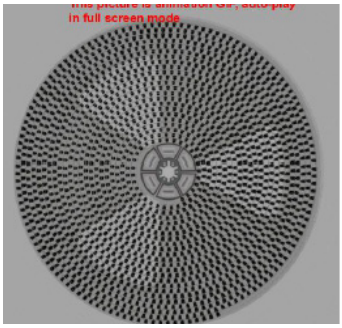
(AUTO) Scattered Chips are countable

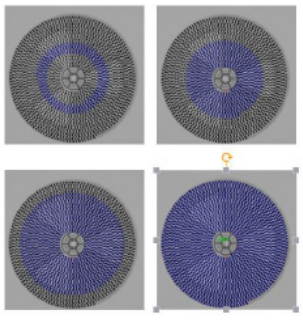



(AUTO) Accurate counting for connected chips




(AUTO) Complex Tall ICs





(AUTO) World first chip tracking technique

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