

4Sight is better than hindsight



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Introduction

So here we are at the last of our four articles on the subject of date code print quality inspection. If you have read the previous three, you will hopefully remember that

- Coders are inherently reliable but suffer from setup and environmental events that produce random variations in print quality which are impossible to eradicate in a manufacturing environment
- Assessing code quality is hard, even for humans. Some codes are obviously unacceptable but others fall into a grey area where acceptability is in the eye of the beholder
- Automatically assessing print quality using vision systems is difficult because of this variation and subjectivity of judgement
- OCR/OCV systems work until you get print variations that deform the fonts being printed – then you get Nuisance Line Stops
- Artificial Intelligence (AI) shows much more promise at dealing with variations but still requires a lot of setup and teaching from people with skills you probably don't employ in a factory

A Different Approach

So technology is getting better, but hasn't yet got this problem completely wrapped up. 4Sight from AutoCoding Systems is a completely different approach to solving these problems in a way that people in a factory can setup and use. 4Sight doesn't use OCR/OCV or rely on AI to learn what is acceptable or not.

AutoCoding has many years of experience controlling coders and that intimate knowledge of how coders work and print has been combined with the latest camera and software technologies from SICK to create the 4Sight application, which is focused on print quality inspection.

Choose your Code Quality

4Sight measures a number of different quality attributes of a printed code, each of which can be used as an independent assessment of an aspect of code quality with its own pass or fail metrics. These quality attributes can be combined so that a code has to pass multiple tests of increasing difficulty in order to be accepted, with each test having its own pass/fail criteria. Imagine a high jump competition or a 100m hurdle race where each hurdle is a bit higher than the one before it. You have to clear them all to finish the race and not getting over any one of them disqualifies the runner.

We call this concept Inspection Depth and the important thing is, if we stretch the hurdle race analogy a little further, we can decide the length of the race, depending on the product we are inspecting or the coding technology being used and the criticality of the information for the customer.



Inspection Depth

Where code quality or packaging material means that really high quality codes are impossible to achieve, then a lower level of inspection depth can be set – there is no point aiming for the high bar because you are never going to clear it. Where codes are of a much higher quality or the data is mission critical, a higher level of inspection depth can be configured which will be a much more rigorous inspection. Unlike OCR/OCV where you only have the option to match the character 'A' to a font reference to make any progress, 4Sight is a much more flexible and nuanced approach.

So, for example, a low level of inspection depth could be to check if there is anything in the date code box at all and to see if we can detect characters that are grouped in a way that match what we know we are looking for (remember, 4Sight knows exactly how coders construct codes and uses this information).

A much higher level of inspection depth would be to do additional checks to determine that a number of other quality criteria are achieved for each individual character and the overall message, to a configurable confidence level.

Throughput or speed is maximised because each check is very fast in its own right, and if the code fails one of the early low level inspections, there is no need to continue, it is immediately a failed code.



A Configurable and Flexible Solution

So how does 4Sight reduce the number of Nuisance Line Stops ? Well, the concept of inspection depth gives much more flexibility to determine what is obviously a bad code versus what might be a slightly suspect code. So the inspection depth settings allow tolerance to certain variation without losing the value of that particular inspection check.

Inspection depth can also be used to define a Bad Code and a Poor Code, on a product by product basis. A bad code is an instant fail which will cause a line stop. It makes sense to limit this to the tests that are cast iron indications of a major printing problem eg no characters or not enough recognisable characters. A poor code is one that is not passing some of the more subtle inspection depth tests. You can configure 4Sight to also stop the line on a poor code if you like, when quality is critical.

However, more typically you would stop the line if you have a number of instances of poor codes in a row, for example. This eliminates the nuisance line stop from just one poor code which can be very helpful. Importantly, the user can choose how to set the system up and what the definition of bad and poor code is for them, as well as what to do when one is detected.



No Specialist Required!

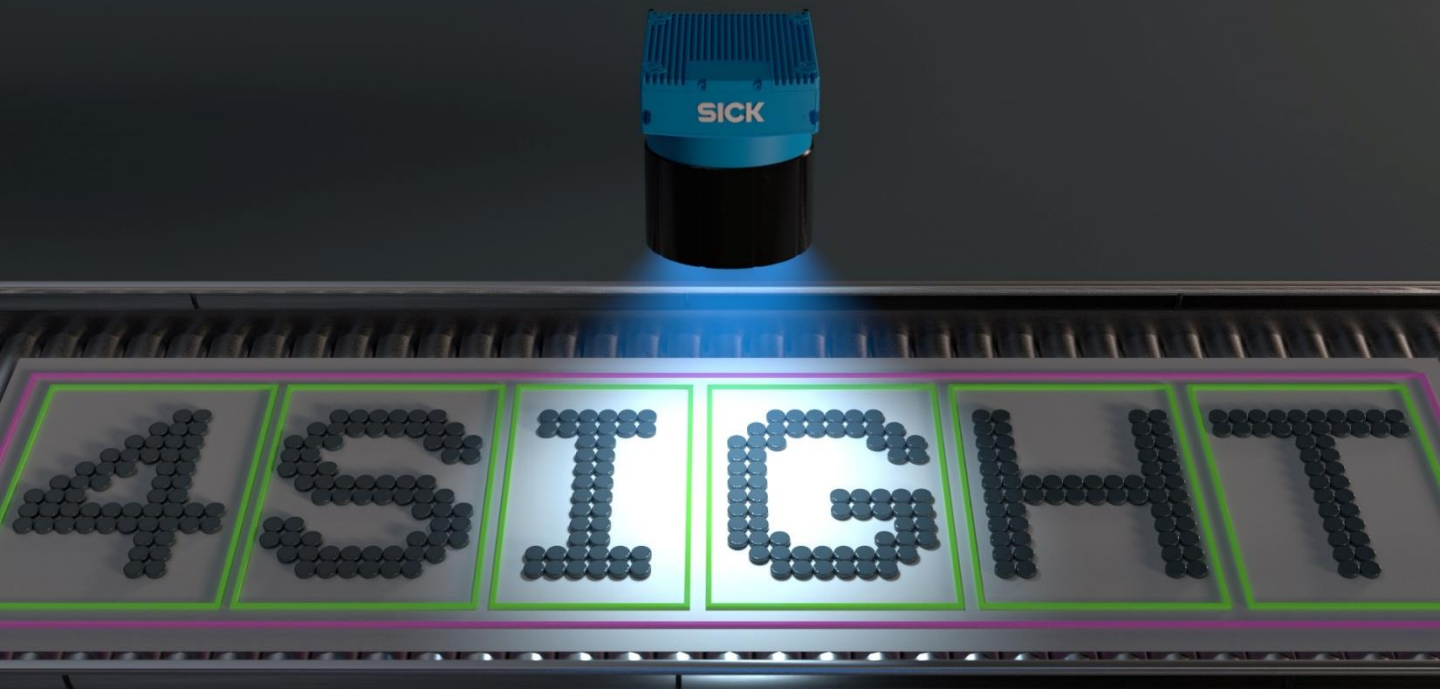
Now what about that vision system expert you probably don't employ – does 4Sight still need one of those to teach it and keep it running ? Fortunately not ! Setup of the system is via a series of simple to follow wizards. For each format of code that you print, you produce a sample you are happy with and run through the setup wizards. 4Sight will configure itself to inspect that format of print and the settings are saved into a configuration file. At run time on the production line, the configuration file is recalled and the camera is automatically configured at the start of the job with nothing for the operator to do.



Find out more

There are many other features of 4Sight that we could go into and maybe they will be the subject of a future series of blogs. However, if this has piqued some interest, why not request a demo below – click the link, complete the form and someone will be in touch shortly.

[Request a Demo](#)





With over 20 years' experience and a new product platform which is the result of over 40 man years' recent development, AutoCoding Systems is a leading supplier of packaging and coding control systems for the food and drink manufacturing industry. With over 1000 lines under our control in the UK, USA, Australia and SE Asia, we are proud to name many of the world's largest food companies among our customers.

With a full product installation and aftersales care team, AutoCoding Systems improves efficiency on the packaging line and manages the compliance of coding and packaging on millions of products every single day. We offer a completely vendor-agnostic solution, providing our customers with complete flexibility and freedom of choice to use coding and printing technologies from all the leading suppliers thanks to our extensive driver library and vendor partnerships.

Ready to find out what our solution could do for your manufacturing business? Reach out to us today to request a free demo.

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**See how AutoCoding Systems can
help your company**

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