About QR Code Image Reading of QR Ware

QR Ware has drawbacks on reading QR code images.

1. Images that are rotated or distorted can not be read out.
2. It takes too long time to read the QR code image.

It is these two.

This image is presented in

“General Description of the QR Code.pdf” (DENSO SI CORPORATION).

it is rotating seeing from diagonally above.

It is distorted.

QR Ware can not read such images.

It is rotating seeing from directly above.

Such may be read by QR Ware.

The second cause,

It takes too long to read the QR code image.

is easily caused by

QR code decoding is performed on the QR code image without reduction.

Normally, when reading a QR code image (decoding a QR code),
the QR code image is reduced and the QR code decoding process is performed based on the reduced QR code image.

QR Ware deciphers the QR code on the input image itself without performing this reduction process.

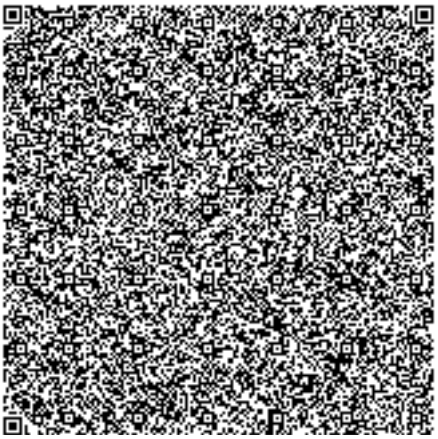
When reading a QR code, a process called "Labeling" is performed.

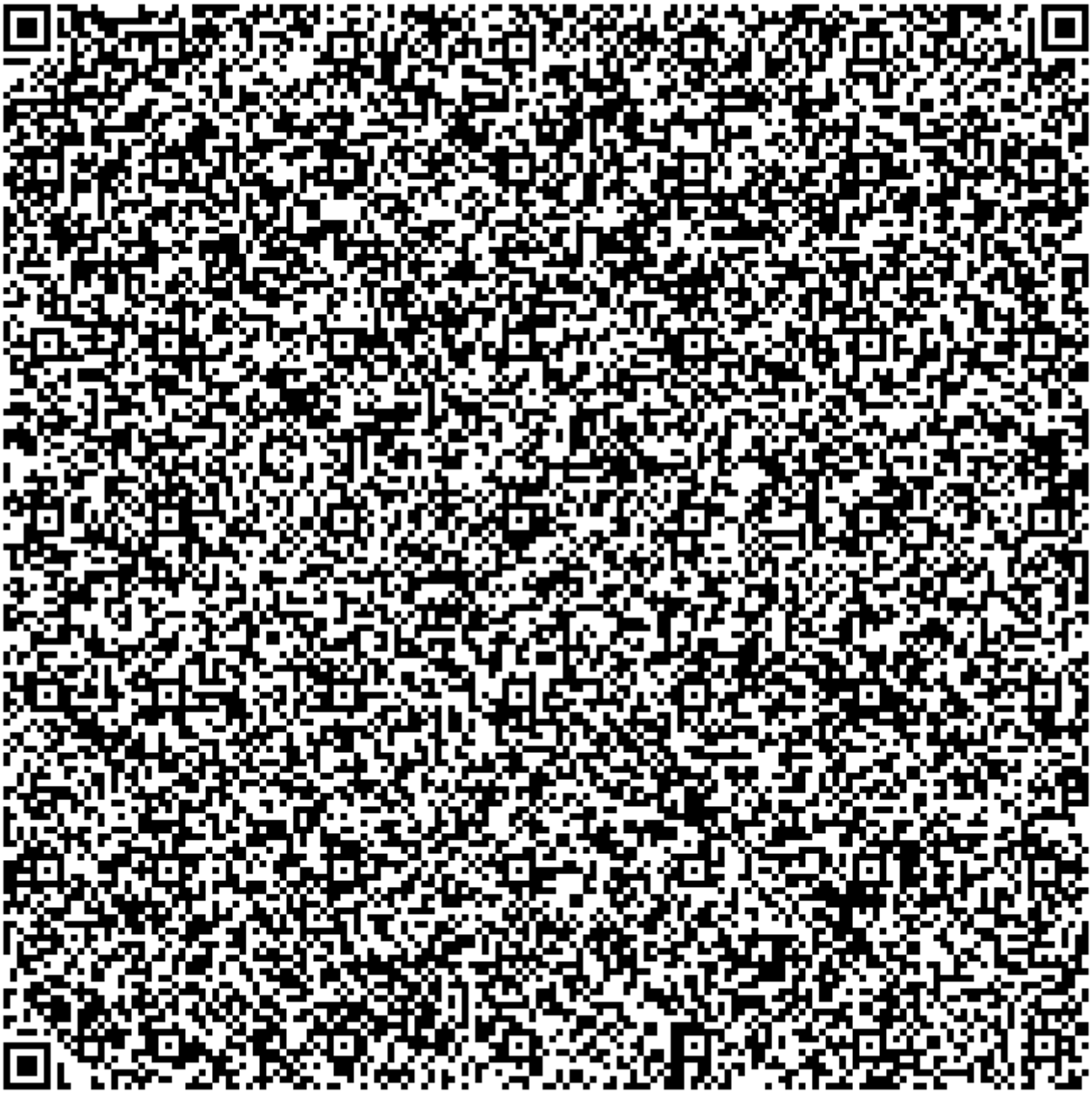
Identifying the connected parts in order to identify the location of each place.

Labeling is such process like this colored thing

QR Ware does not shrink the image when doing this labeling.

This is the main cause of the slow reading of QR Ware.





For example, the two are the same, but the upper one returns control immediately, but the lower one is like "thinking".

This difference in reaction rate is caused by “the number of pixels to be labeled.”

upper 177 * 177 ... 31,329
lower 708 * 708 ... 501,264

This difference in number of pixels is the biggest cause of the delay

Also, on the process of labeling, there is a feature such as

"If it fails, start over from the beginning."

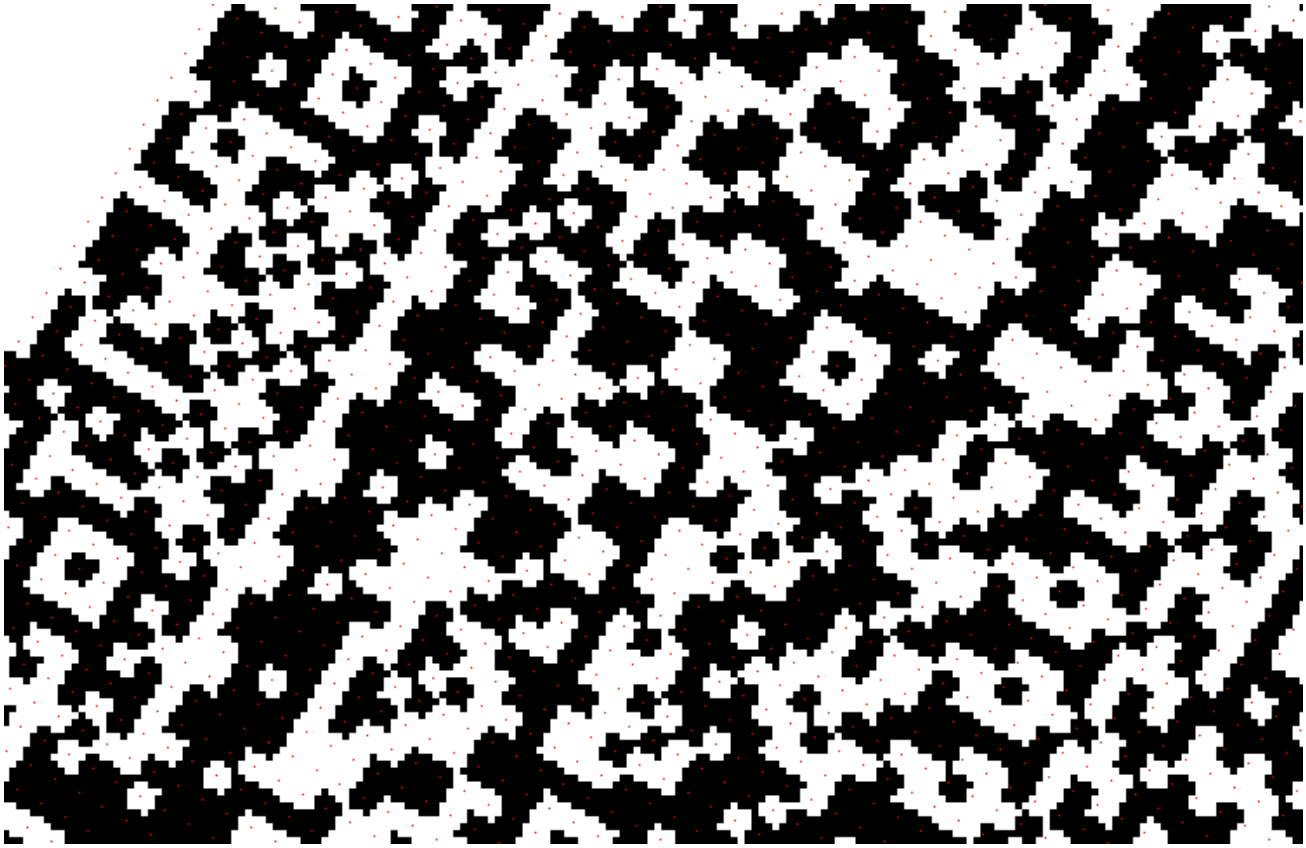
Therefore, the required time is more than the cube of the number of pixels.

For this reason, if the reduction is not applied to the QR code image to be read, decoding of the QR code takes a considerable amount of time.

However, QR Ware does not apply reduction processing.

Fixed unreadable, broken, or intentionally damaged QR code image by hand with image software.

In order to extract the data in the QR code even from such images,
QR Ware does not apply reduction processing.



Although this QR code is not broken separately, it is difficult to reduce the size if the dot position of the QR code is determined.

Fixed unreadable, broken or Intentionally damaged QR code image by hand with image software.

Even from such an image, the data of the content of the QR code is taken out.

For this purpose, QR Ware reads out the QR code without reducing it.

QR Ware was originally the QR code input/output part of cipher software.

If what is stored in the QR code is important, it means that you have to read it anyway.

If it becomes broken or intentionally damaged, it will be enlarged and corrected by hand with image software.

Even in such a thing, in order to take out the contents inside, it is said that the QR code reading is done without reduction.

Therefore if you read a large QR code image, it may take more than an hour.

However, compared to other QR code reading software, images of the normal size will be slower, and images of small size may be read out in the same amount of time.