

**Computer Vision**

**Barcode Identification (\*)**

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**Barcode Identification**

- **Introduction**
- **Examples**
- **Outline for barcode identification application**
- **Exercises**

27-8-2018 Barcode identification 2

### Introduction to barcodes

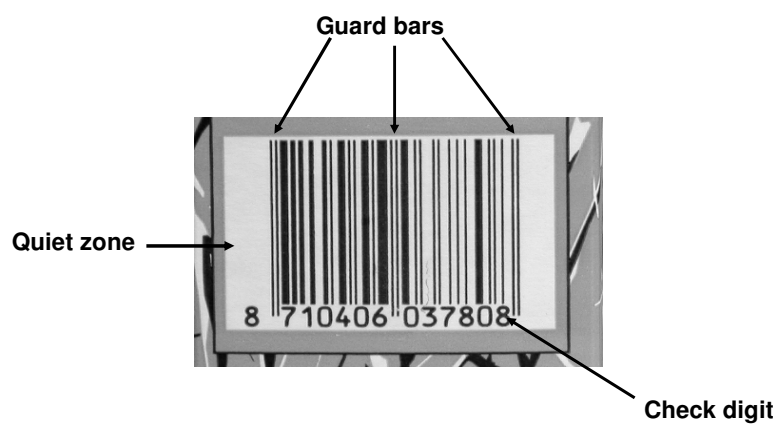
- **Barcodes are used for product identification**
- **The sizes of the bars and the spaces encodes the information**
- **Optional check digit**
- **Fixed length or variable length**

27-8-2018

Barcode identification

3

### Example EAN-13 barcode




27-8-2018

Barcode identification


4

### Examples of other barcodes



asdfghjkl,'

Code 128



12345670

Interleaved 2 of 5

27-8-2018Barcode identification5

### Identify Barcode

**identifybarcode (image, barcodeType, nrChars, lineDistance, scanDir, check)**

This operator identifies a barcode in a binary image.  
The barcode lines must be approximately vertical.

**Parameters:**

- **barcodeType:** Bookland CODE\_39 CODE\_128 EAN\_8 EAN\_13 Industrial\_2of5 Interleaved\_2of5 Standard\_2of5 UPC\_A UPC\_E USD\_3
- **nrChars:** number of characters in barcode, only used for variable length barcodes
- **lineDistance:** distance between the scanlines. Value = 1 for most accurate results, values > 1 give higher speed
- **scanDir:** NormalScanDir, ReversedScanDir or BothScanDirs
- **check:** Check or NoCheck. Whether or not result is checked, like for checksum if applicable.

27-8-2018Barcode identification6

### Examples

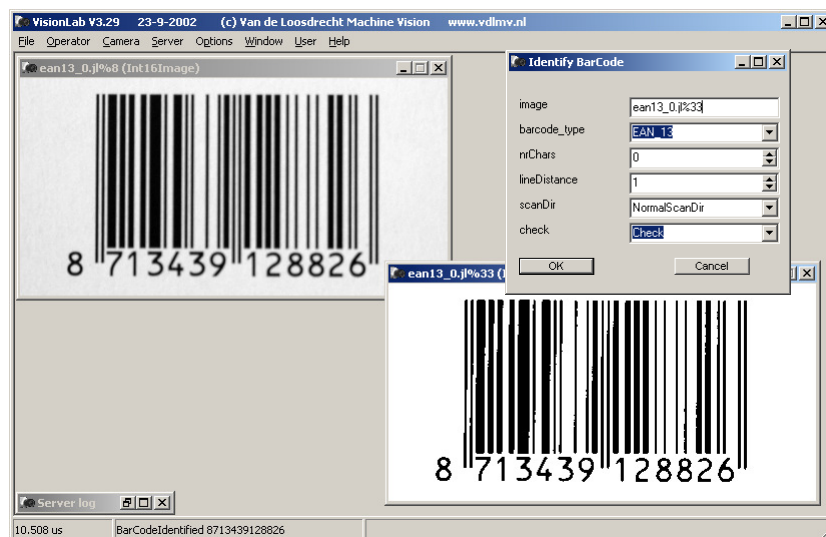
- Open image ean13\_0.jl
- ThresholdIsoData DarkObject
- identifybarcode EAN\_13 0 1 NormalScanDir Check
- mirror thresholded barcode MirrorInCentre
- identifybarcode EAN\_13 0 1 NormalScanDir Check (-> error)
- identifybarcode EAN\_13 0 1 ReversedScanDir Check
- identifybarcode EAN\_13 0 1 BothScanDirs Check

27-8-2018

Barcode identification

7

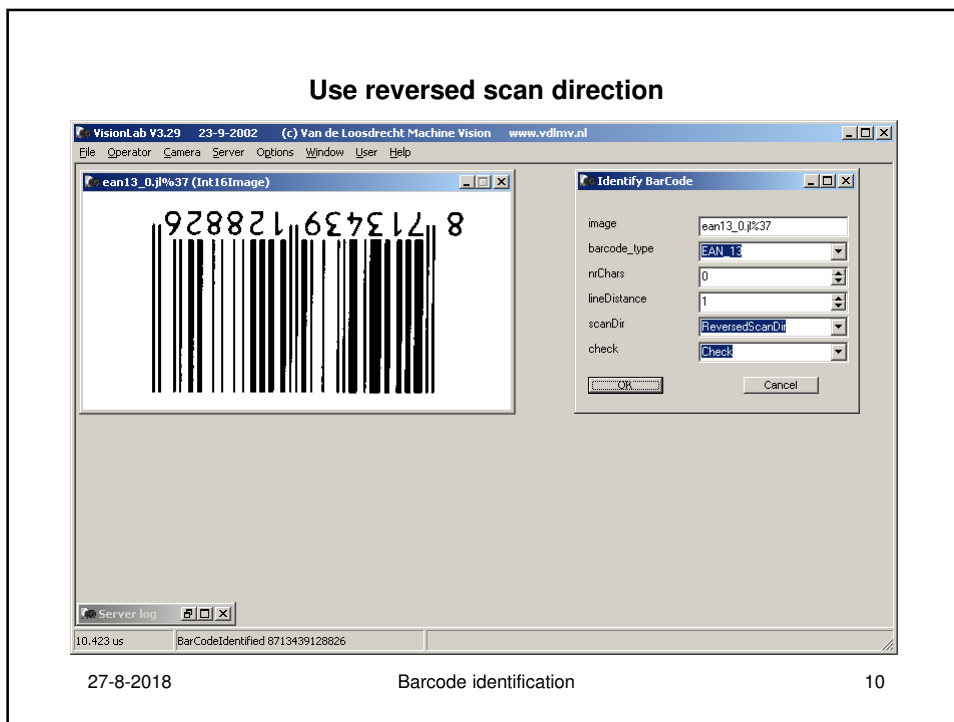
### Normal scan direction

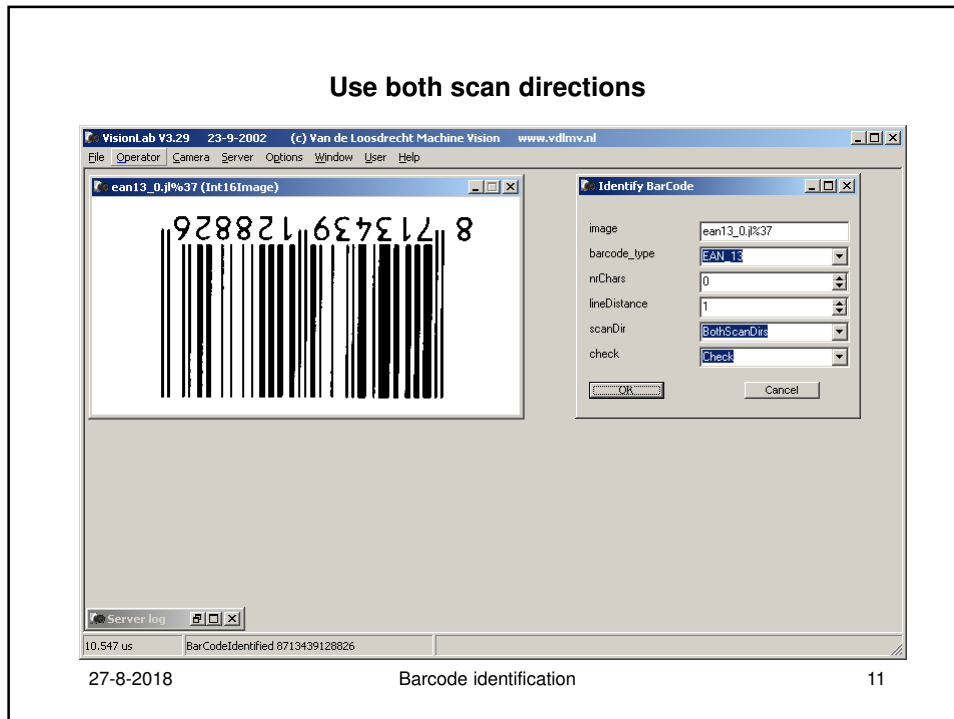


27-8-2018

Barcode identification

8

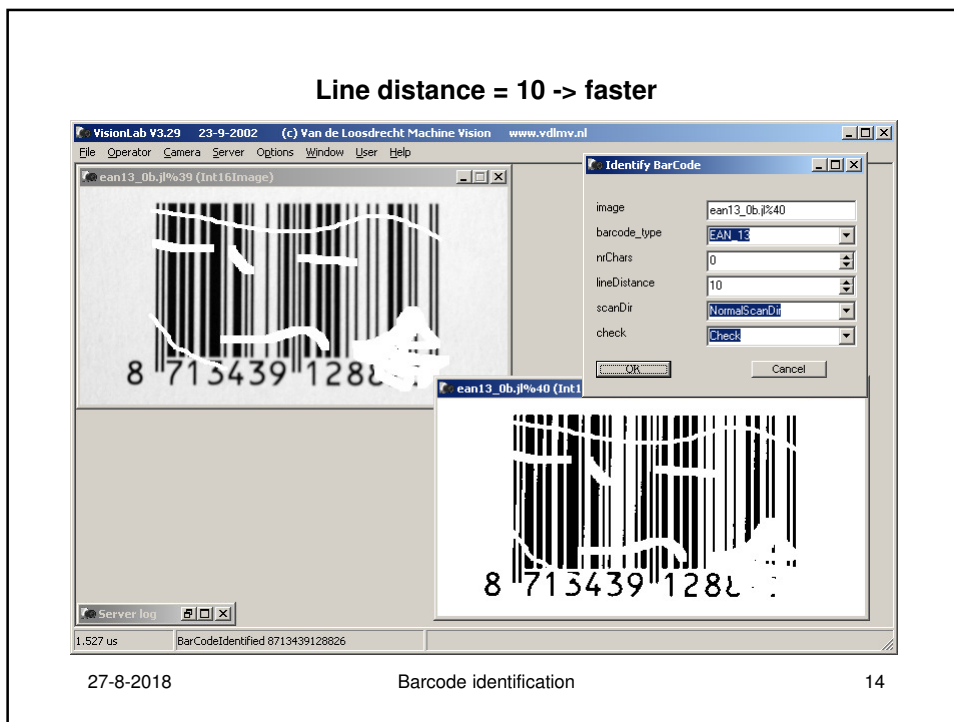
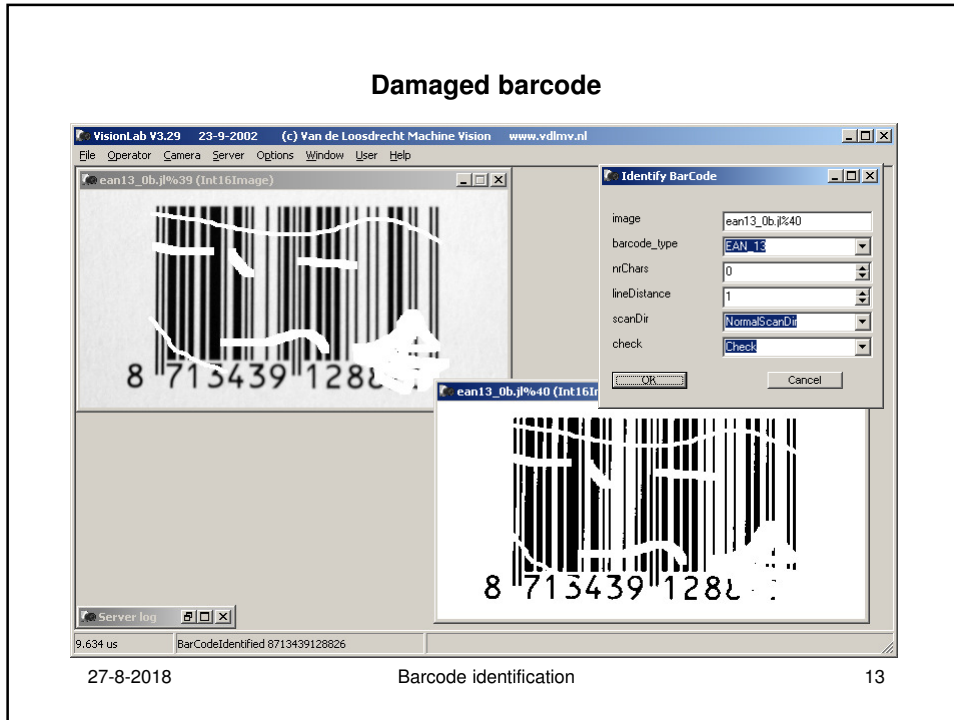


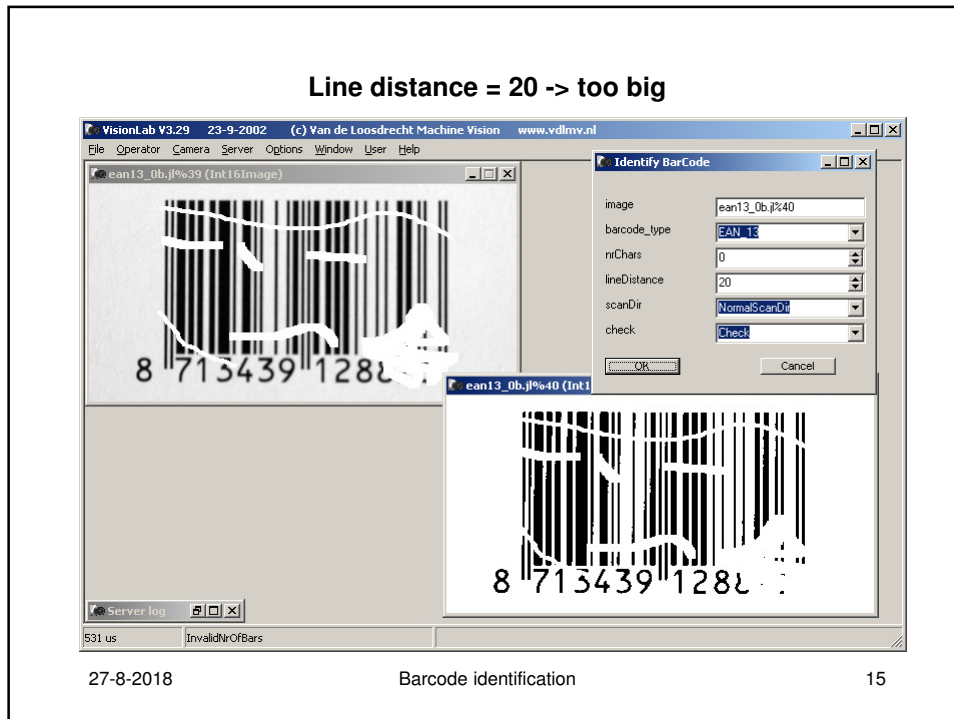


**Examples**

- **Open image ean13\_0b.jl (damaged barcode)**
- **ThresholdIsoData DarkObject**
- **identifybarcode EAN\_13 0 1 NormalScanDir Check**
- **identifybarcode EAN\_13 0 10 NormalScanDir Check (-> faster)**
- **identifybarcode EAN\_13 0 20 NormalScanDir Check (-> error)**

27-8-2018 Barcode identification 12





### Outline for barcode identification application

- Find barcode in image, using if possible quite zone
- Cut out barcode
- Rotate barcode horizontal
- Segment barcode
- Identify barcode
- Check if barcode is identified



### Exercises

- Write scripts for the identification of the barcodes in the images:

- `barcode1.jl`



- `barcode2.jl`



- answers: scripts `barcode1.jls`, `barcode2.jls`

27-8-2018

Barcode identification

17