



Computer Vision

Barcode Identification (*)

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Noordelijke Hogeschool Leeuwarden and Van de Loosdrecht Machine Vision
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j.van.de.loosdrecht@tech.nhl.nl, jaap@vdlmv.nl

Barcode Identification

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Introduction to barcodes

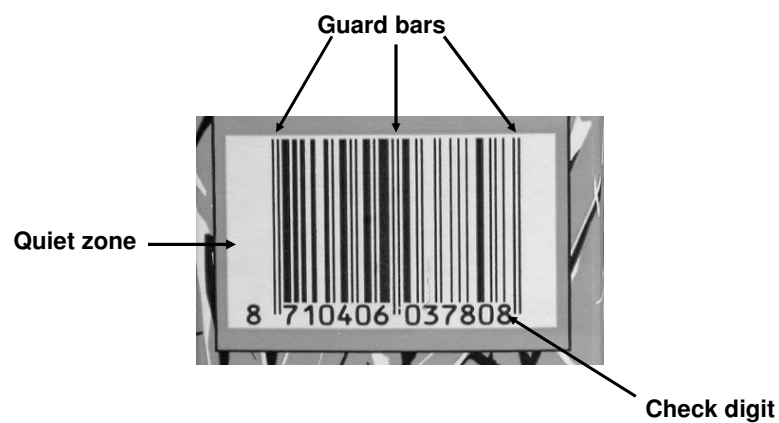
- Barcodes are used for product identification
- The sizes of the bars and the spaces encodes the information
- Optional check digit
- Fixed length or variable length

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Example EAN-13 barcode



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Examples of other barcodes



Code 128

asdfghjkl;'



Interleaved 2 of 5

12345670

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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.

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Examples

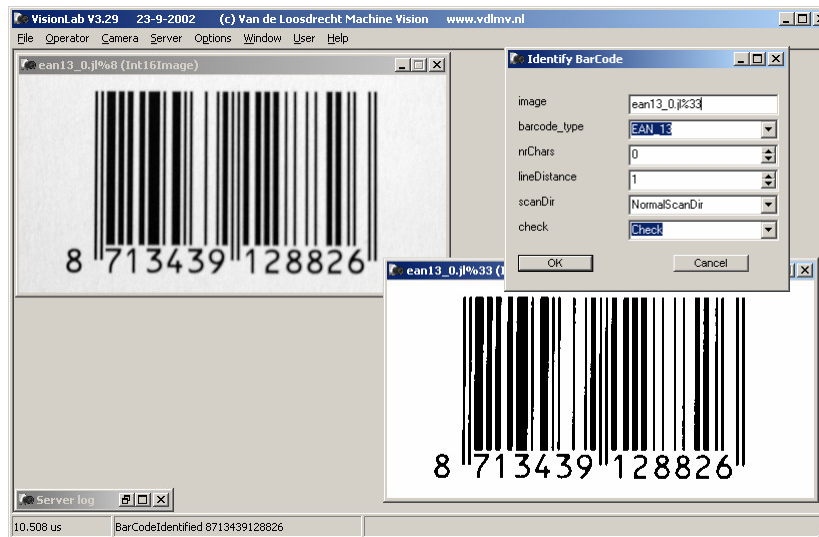
- Open image ean13_0.jl
- ThresholdIsoData DarkObject
- identifybarcode EAN_13 0 1 NormalScanDir Check
- mirror thresholded barcode MirrorInCentre
- identifybarcode EAN_13 0 1 NormalScanDir Check (-> error)
- identifybarcode EAN_13 0 1 ReversedScanDir Check
- identifybarcode EAN_13 0 1 BothScanDirs Check

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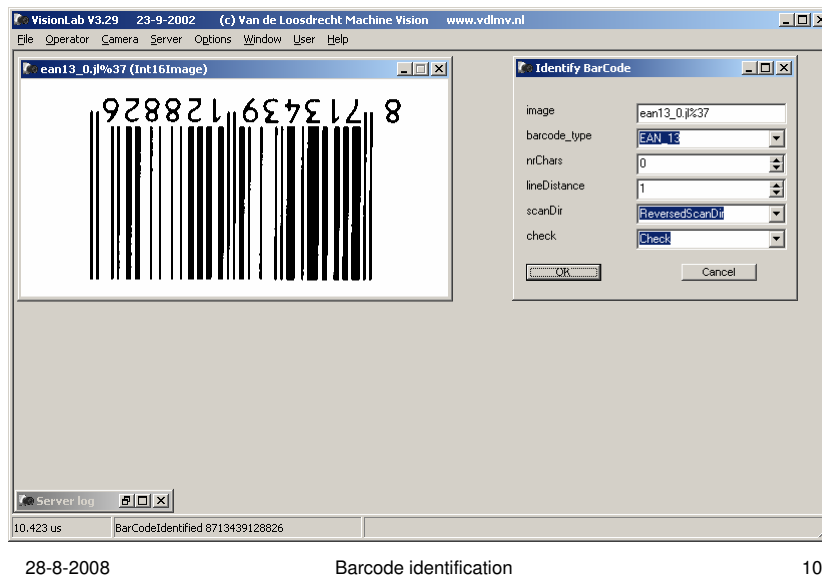
Normal scan direction



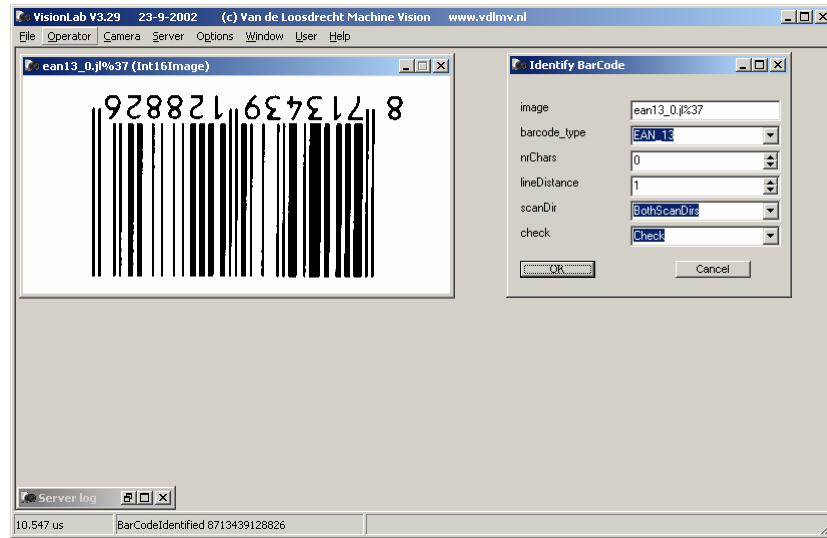
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Mirror barcode**Use reversed scan direction**

Use both scan directions



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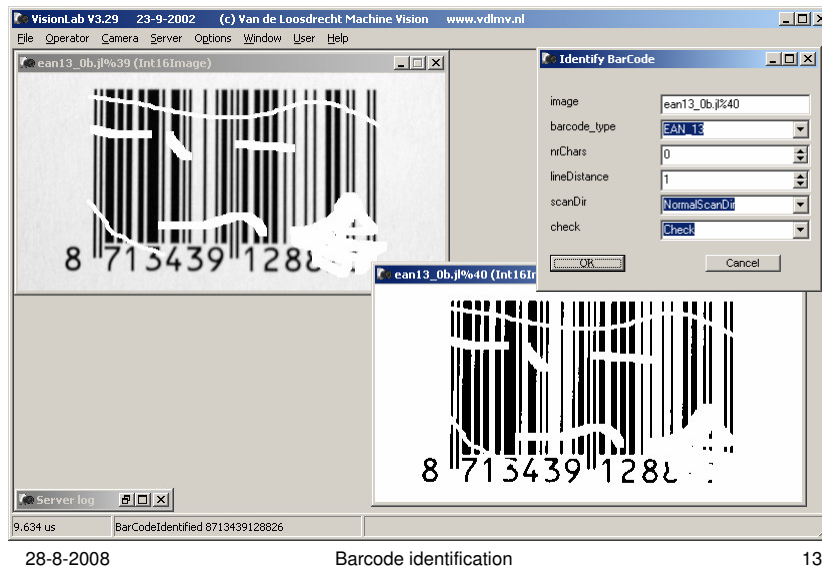
Examples

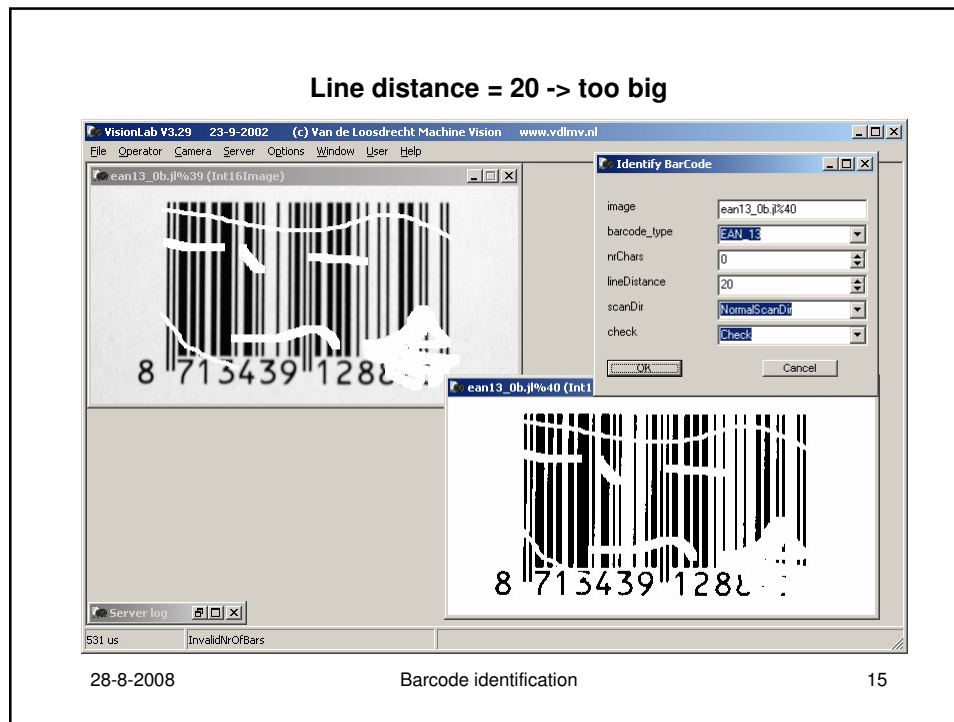
- Open image ean13_0b.jpg (damaged barcode)
- ThresholdIsoData DarkObject
- identifybarcode EAN_13 0 1 NormalScanDir Check
- identifybarcode EAN_13 0 10 NormalScanDir Check (-> faster)
- identifybarcode EAN_13 0 20 NormalScanDir Check (-> error)

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Damaged barcode**Line distance = 10 -> faster**



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

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