上海交通大学巴黎卓越工程师学院
SJTU Paris Elite Institute of Technology

Machine Vision-based Intelligent Recognition of Building Air Conditioning Interface

Practical Project

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Student: Marko Babic

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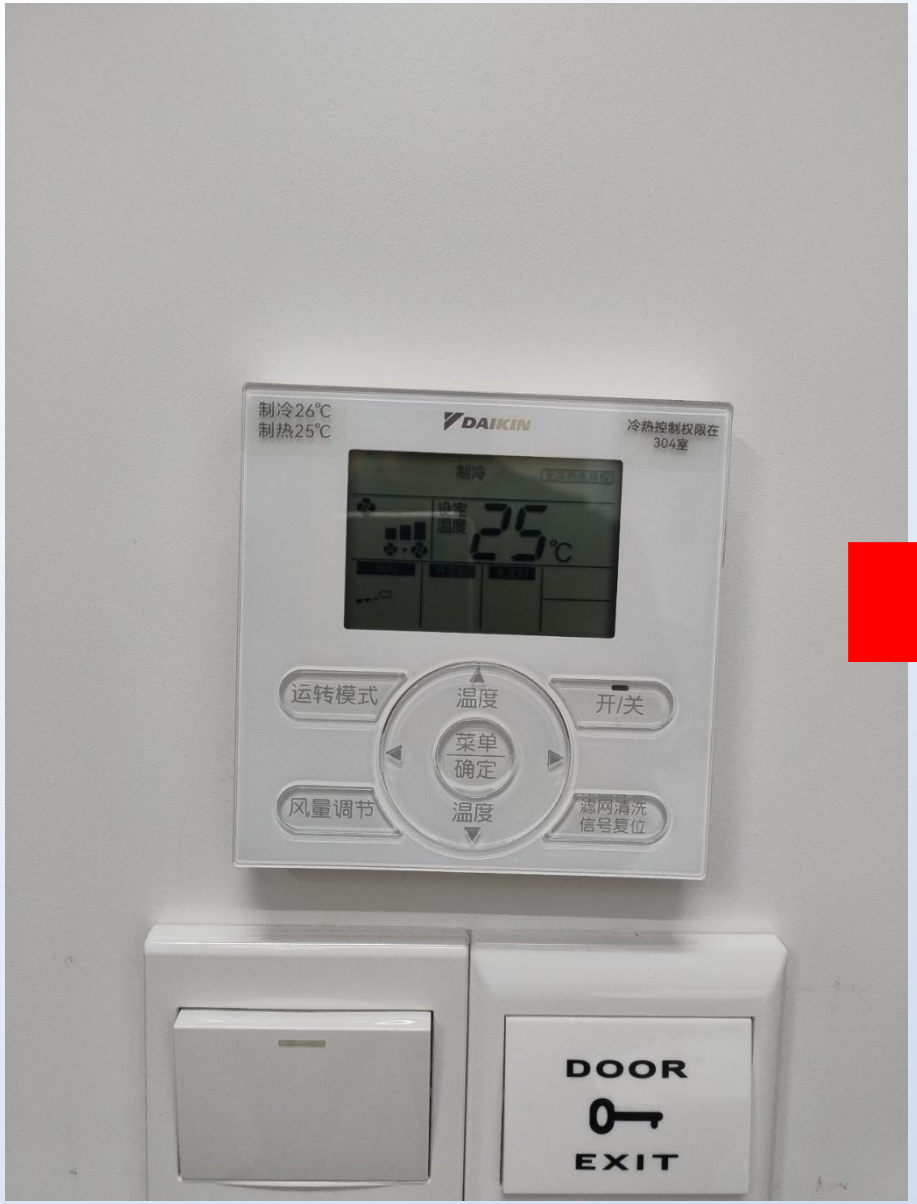
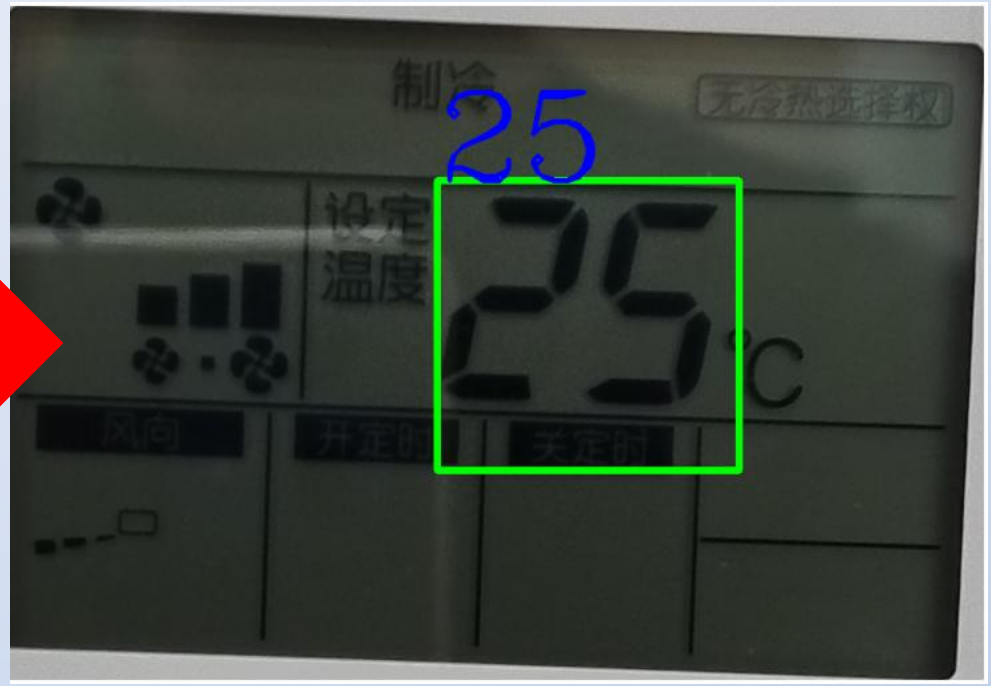
1 000 000 000

tons of CO_2

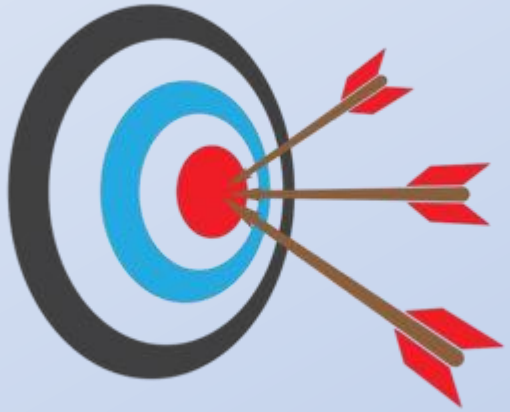
Source: ourworldindata.org

DOOR
EXIT


制冷26℃
制热25℃
DAIKIN
冷热控制权限在
304室
制冷
设定
温度
25℃
运转模式
温度
开/关
菜单
确定
风量调节
温度
滤网清洗
信号复位
DOOR
EXIT


制冷
25
设定
温度
25℃

Project's purpose



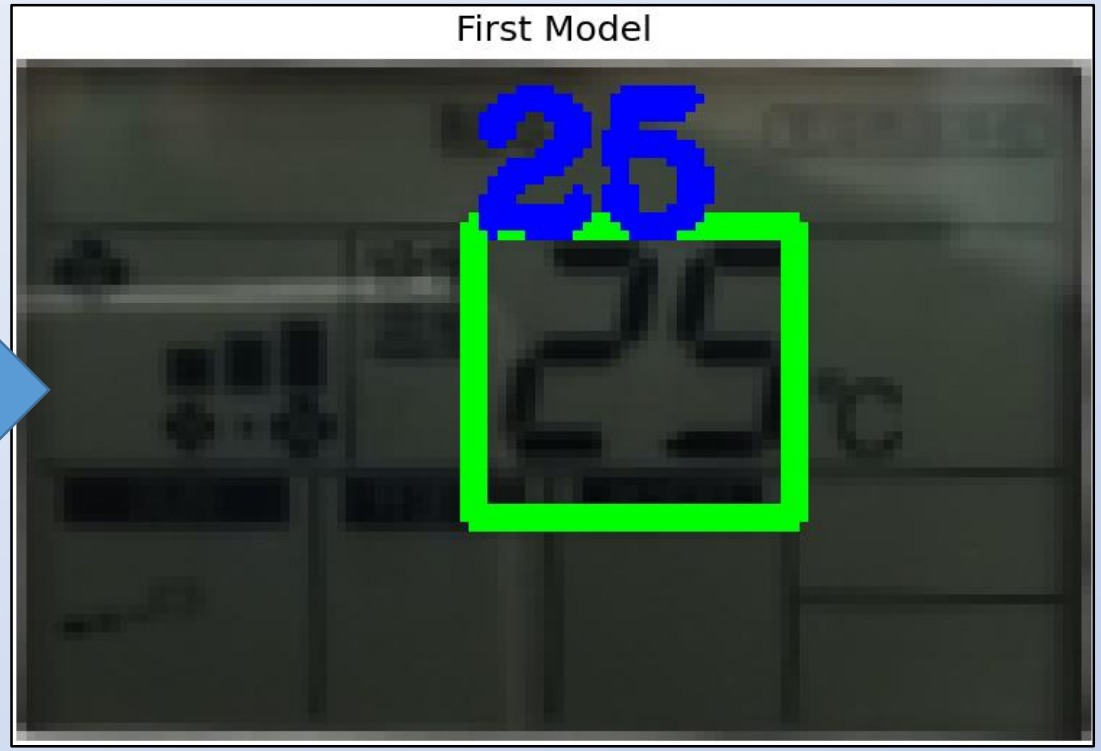
I - taking pictures

205
Pictures

II - model 1

easyOCR

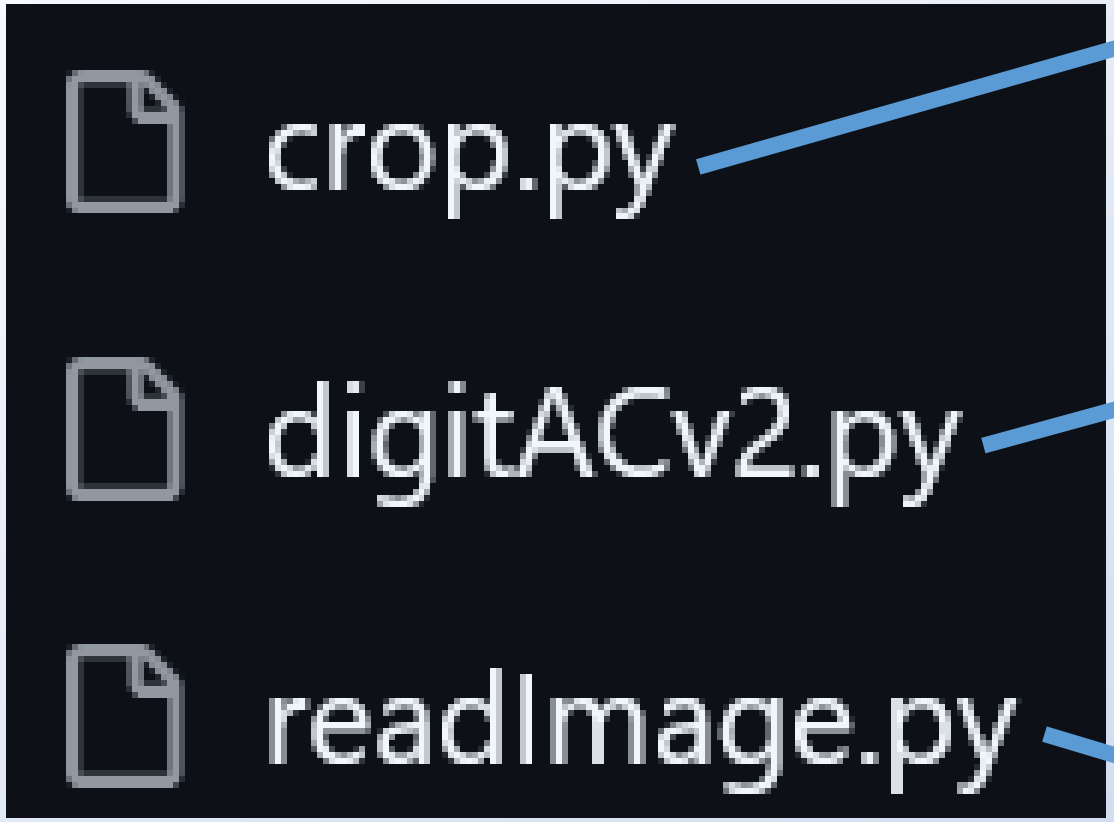
Celsius Problem



III - model 2

First model's failure on picture n°2

Read minimum 5 pictures



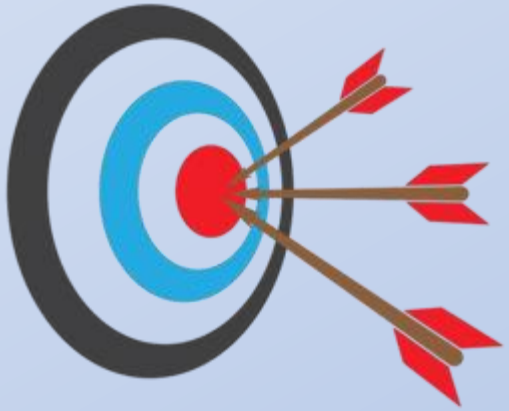
GRAY/GREEN MASK

MAIN PROGRAM

READING
+
NEW BLUR

IV - testing program

LABEL = 25

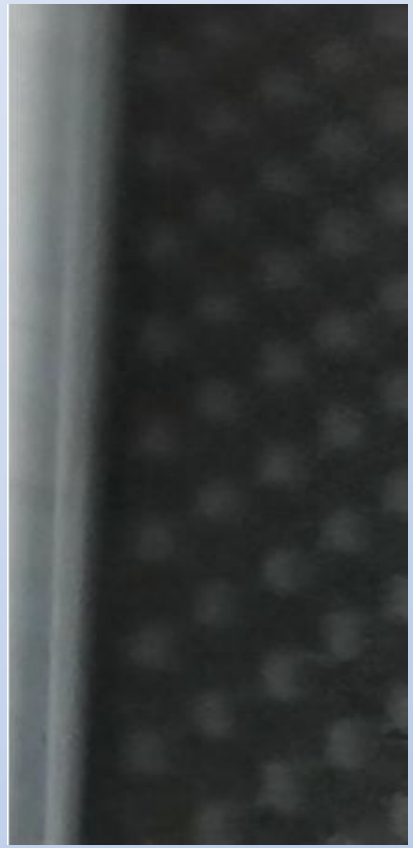


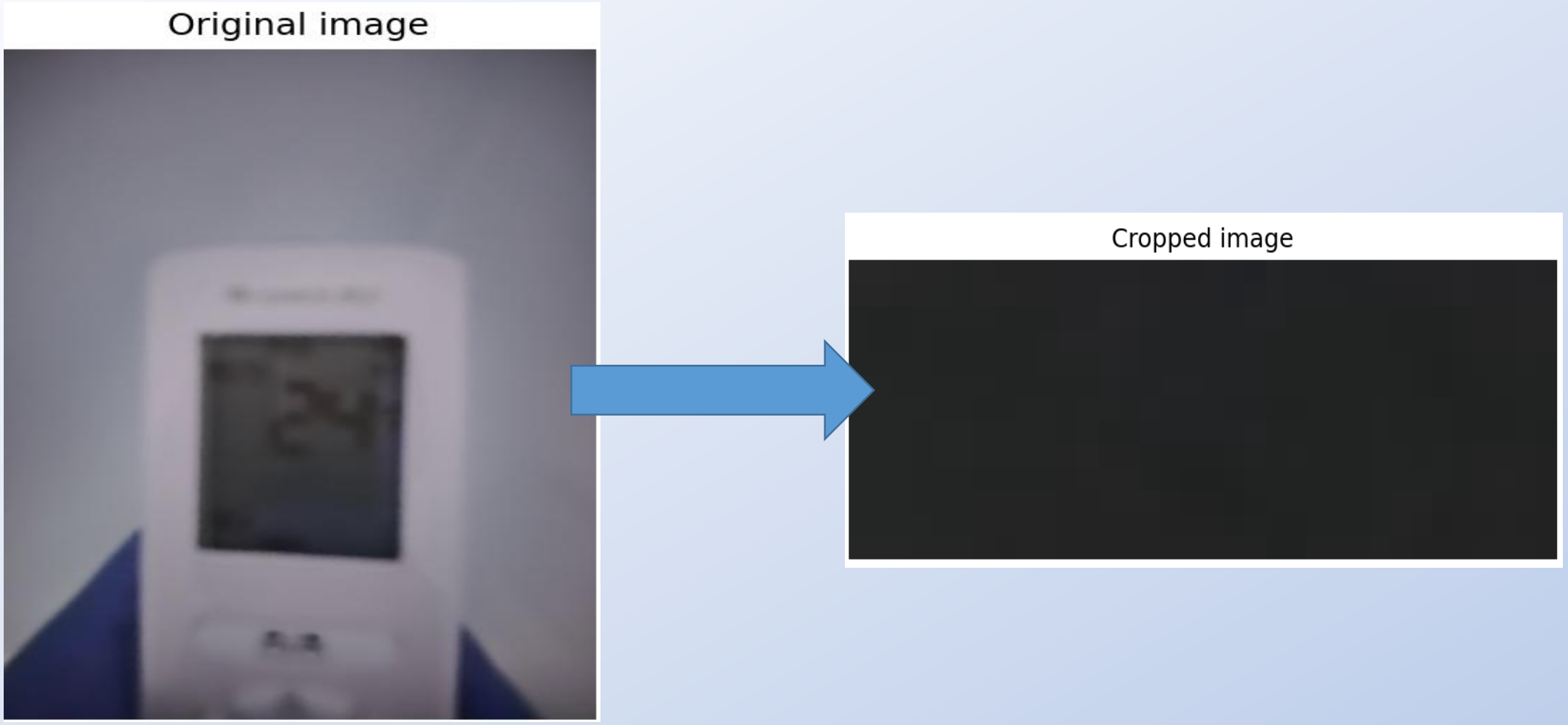
Model 2's result

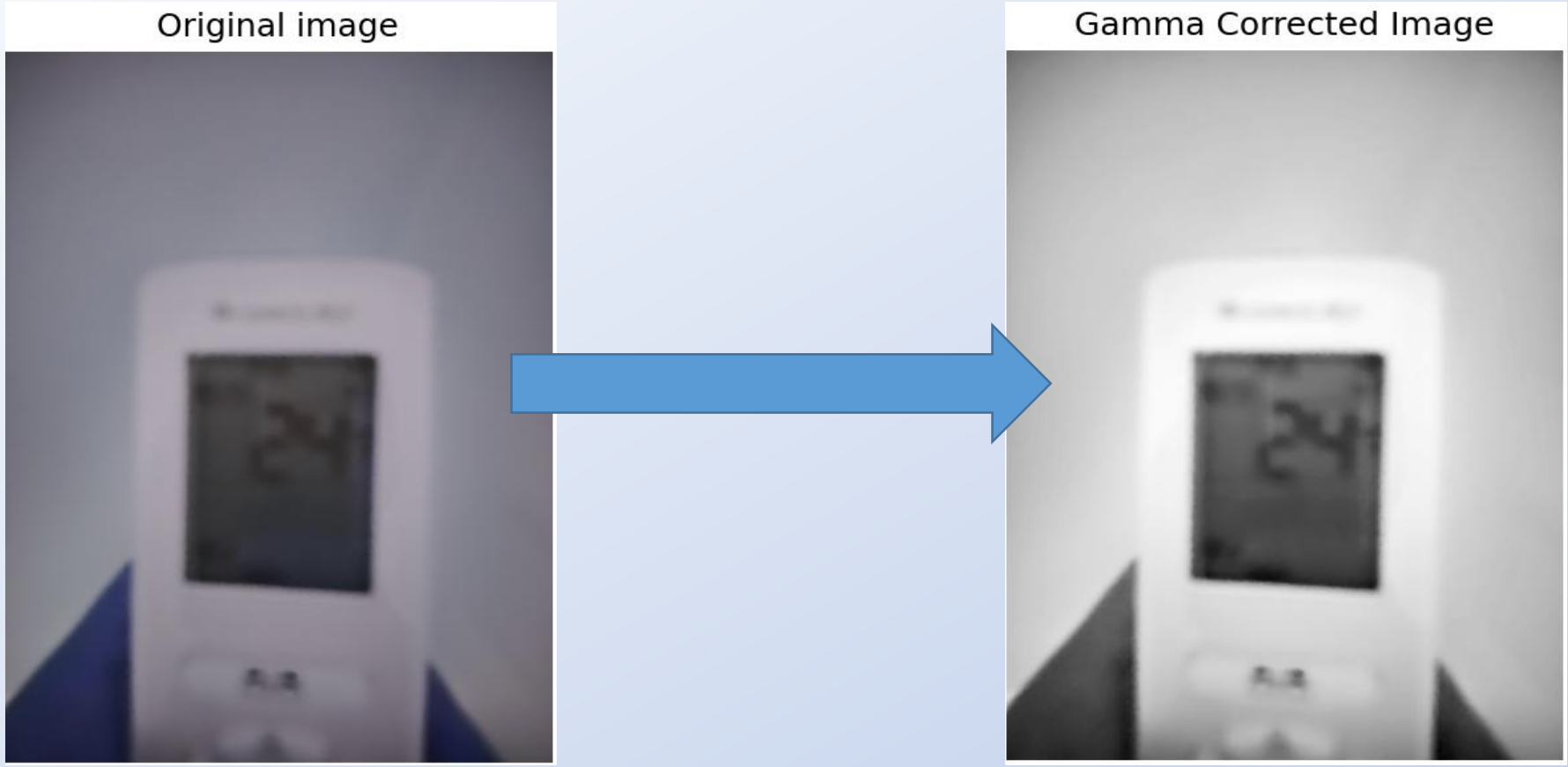
Accuracy: **9,7%**

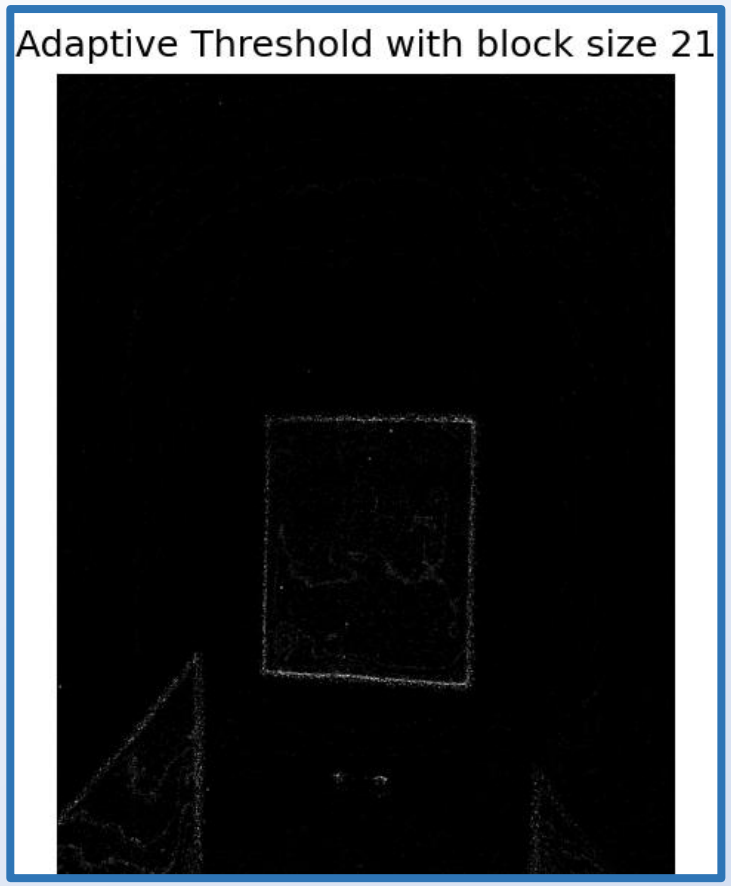
Execution time: **38 minutes**

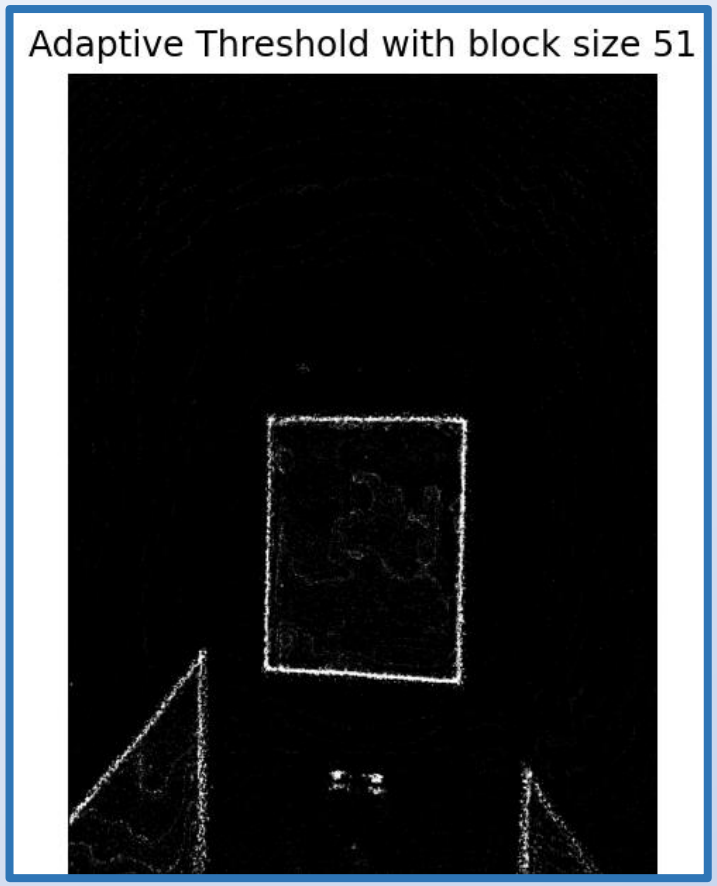
V - model 3

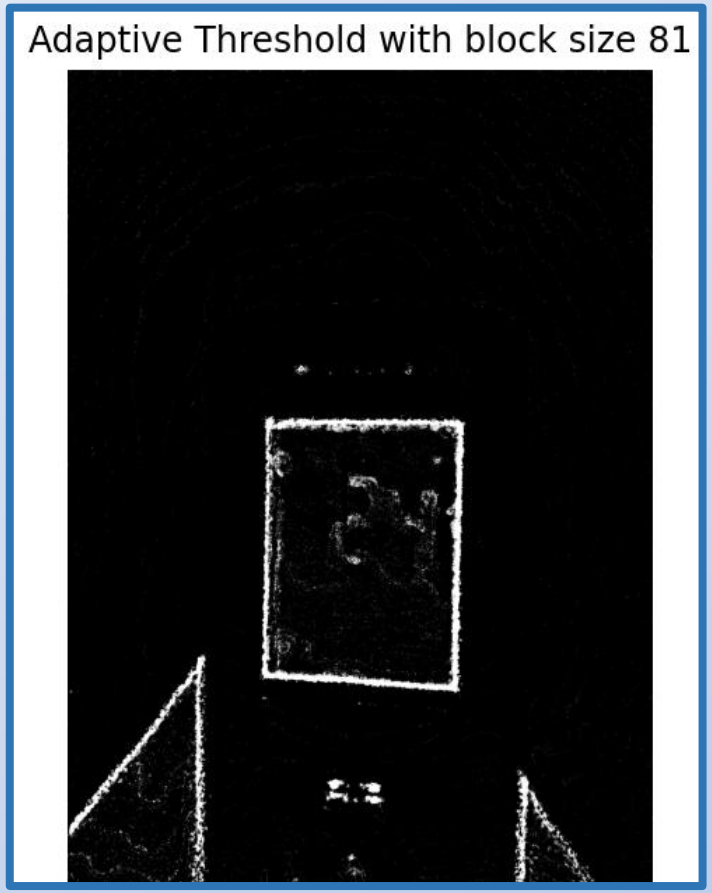



Original image
Cropped image

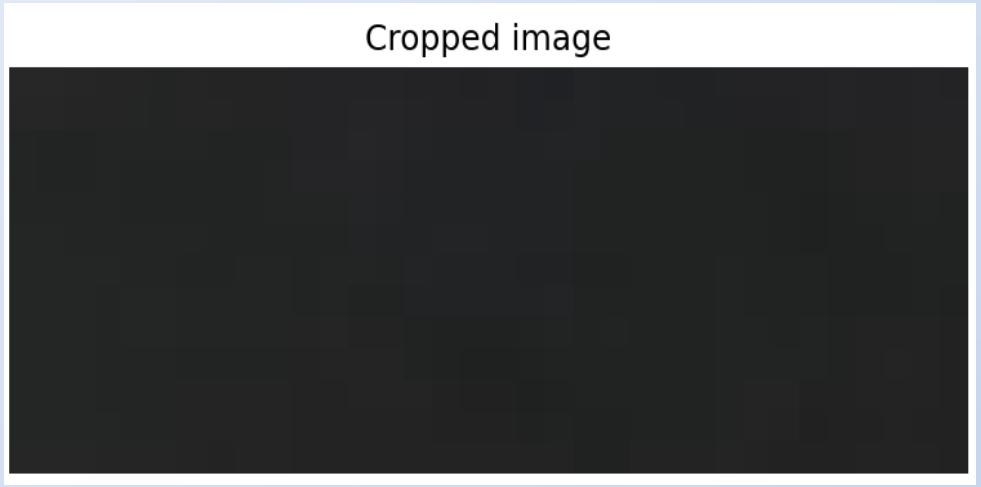

Original image
Gamma Corrected Image


Adaptive Threshold with block size 21


Adaptive Threshold with block size 51


Adaptive Threshold with block size 81

model 3



model 2

Model 3's result

Accuracy: **7,8%**

Execution time: **1h25**

VI - model 4

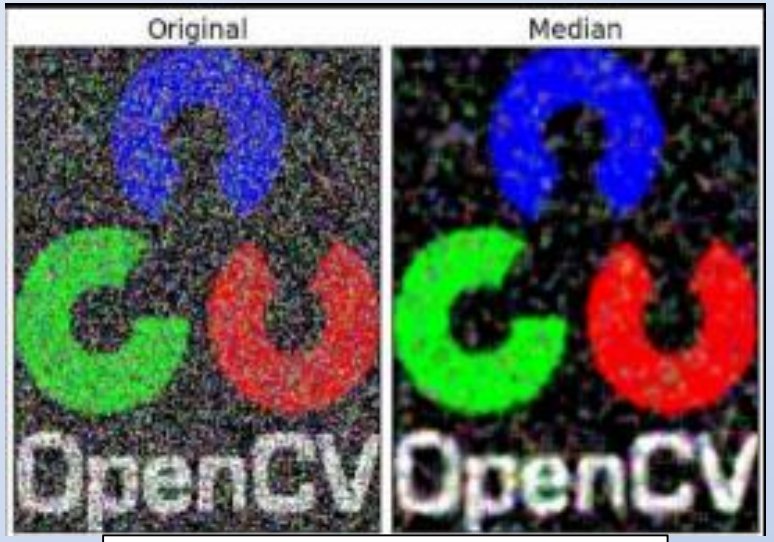
How to read a low quality picture ?

Image processing

3 processes used

Dilatation

Closing



Median Blur

Source: docs.opencv.org

We redo reading if :

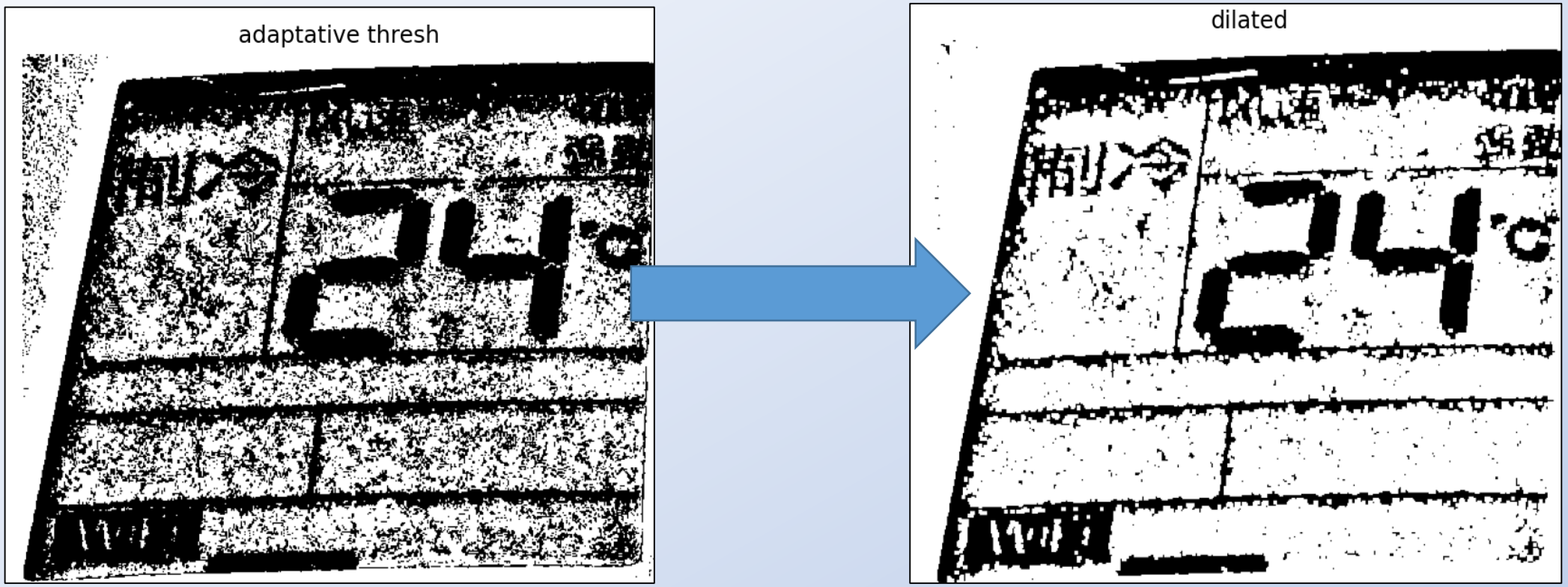
empty

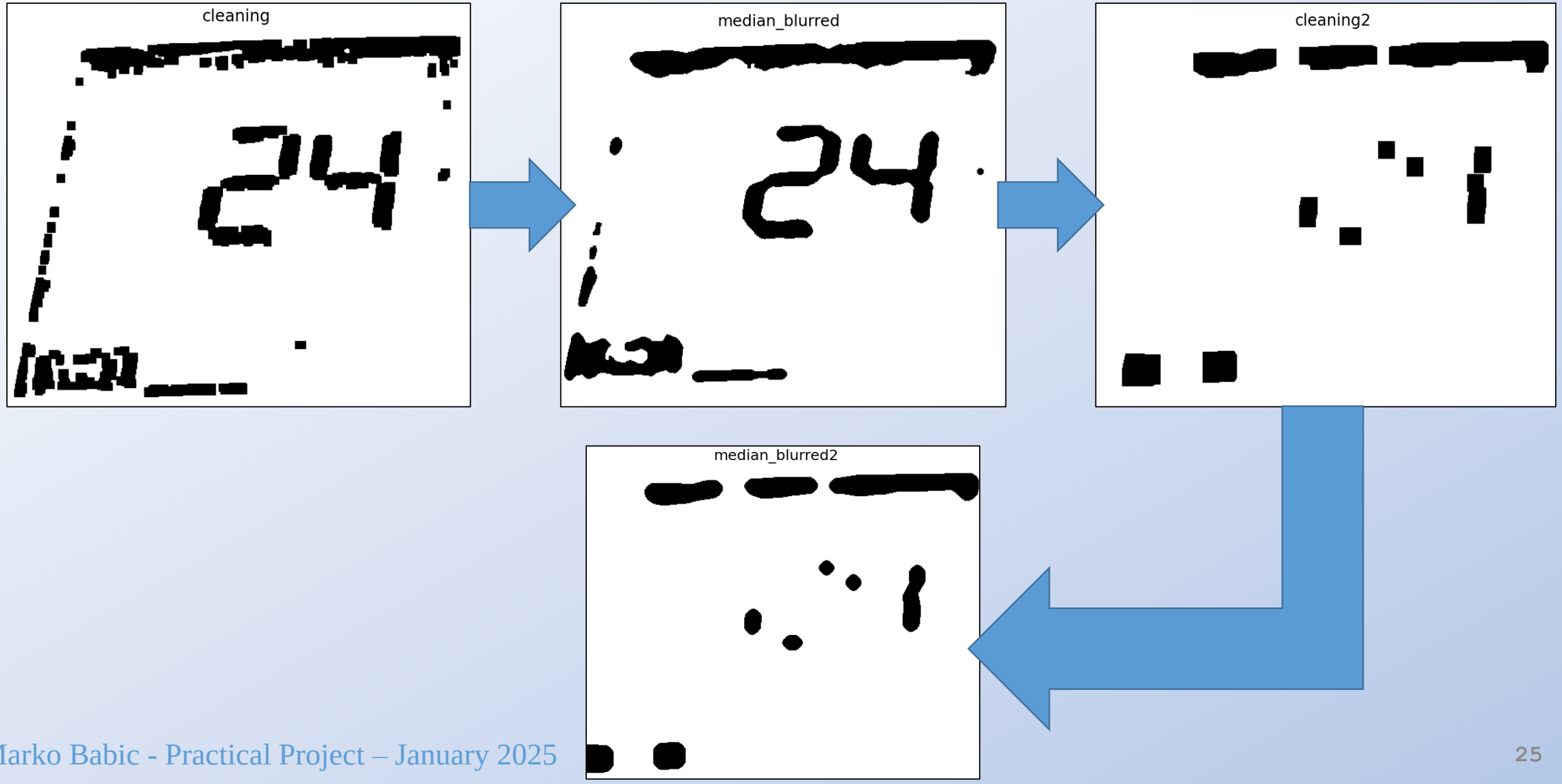
length ≠ 2

1 non digit character

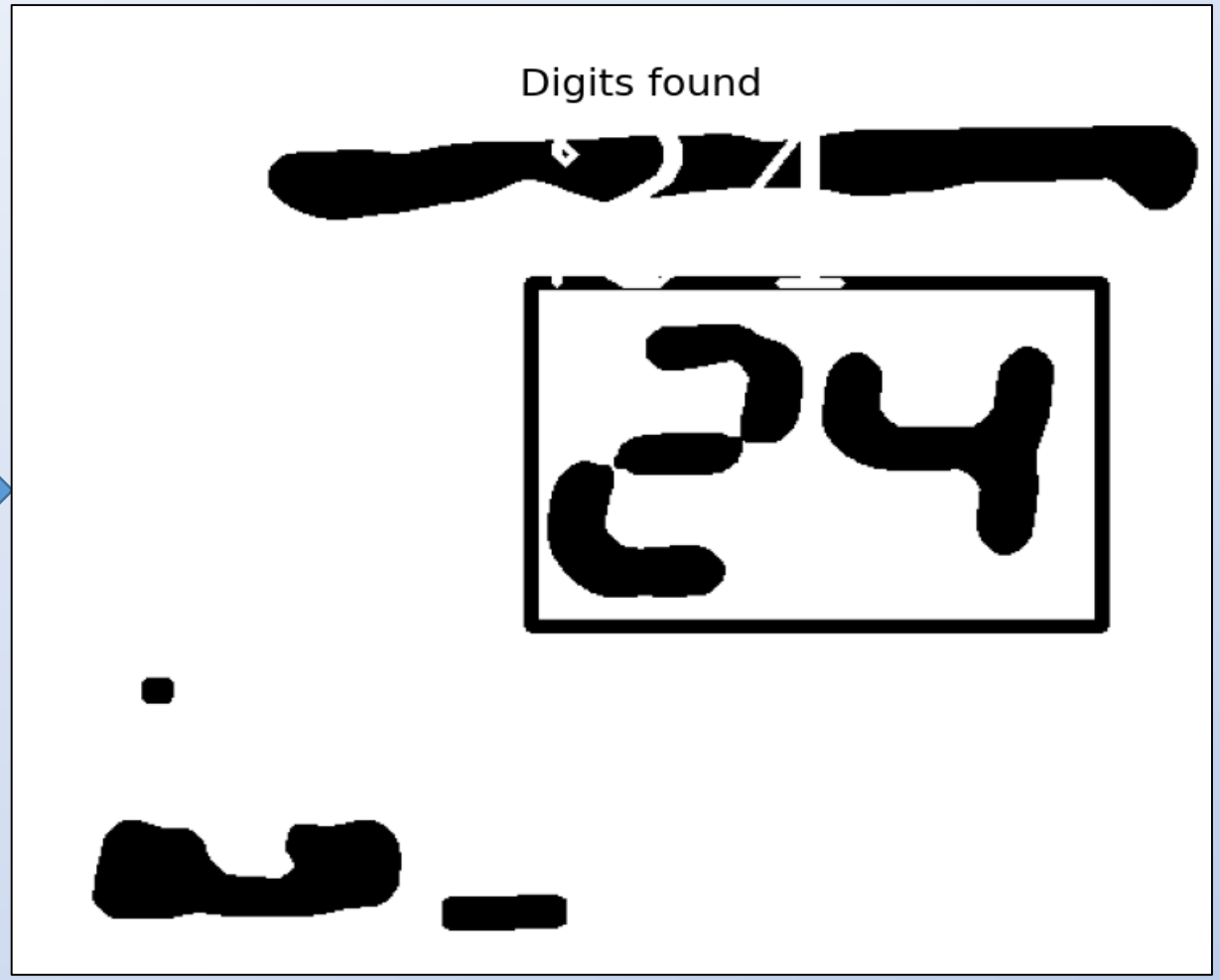
Gamma Corrected Image

Largest Cropped image by Width


adaptative thresh
dilated


cleaning
median_blurred
cleaning2
median_blurred2

Redo with new parameters



Model 4's result

Accuracy: **9,7%**

Execution time: **~5h**

VII – Problems and improvements

easyOCR

Hardware

Purpose of the project

Thank you for listening

Pictures

- Final report
- Bing images
- Pixabay