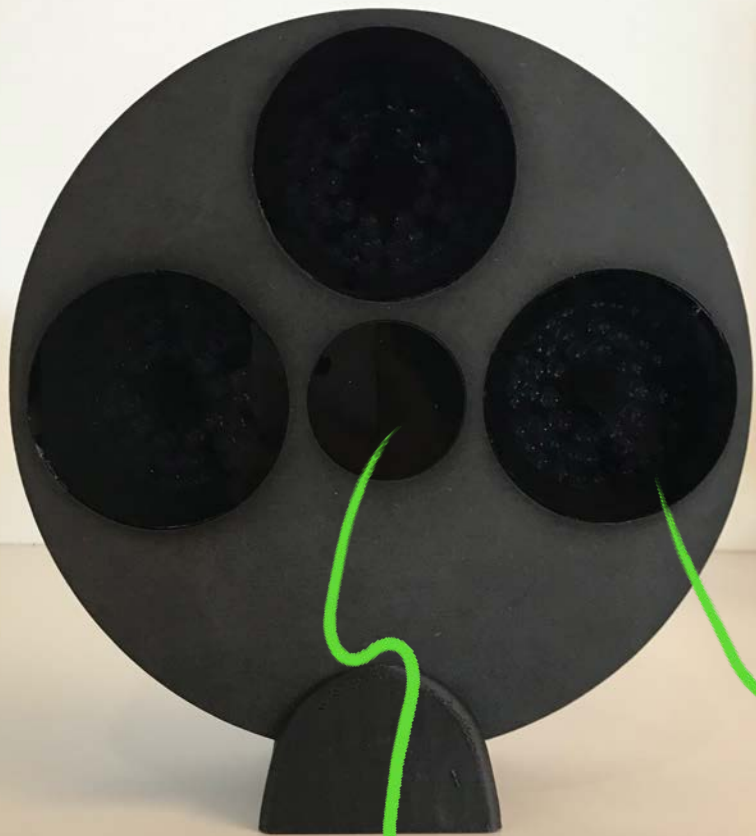




The VCDS prototype

Vehicle Cleanliness Detection System



camera
+
UV filter



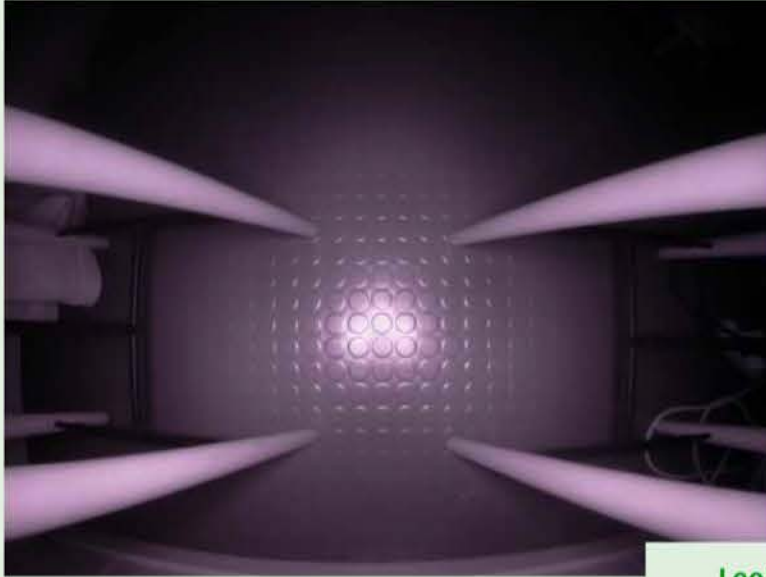
infrared lights



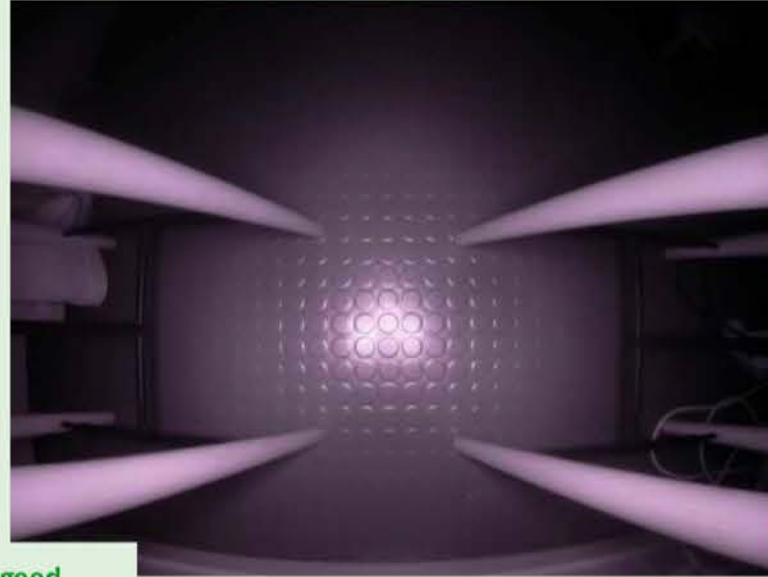
Raspberry Pi

VEHICLE CLEANLINESS DETECTION SYSTEM

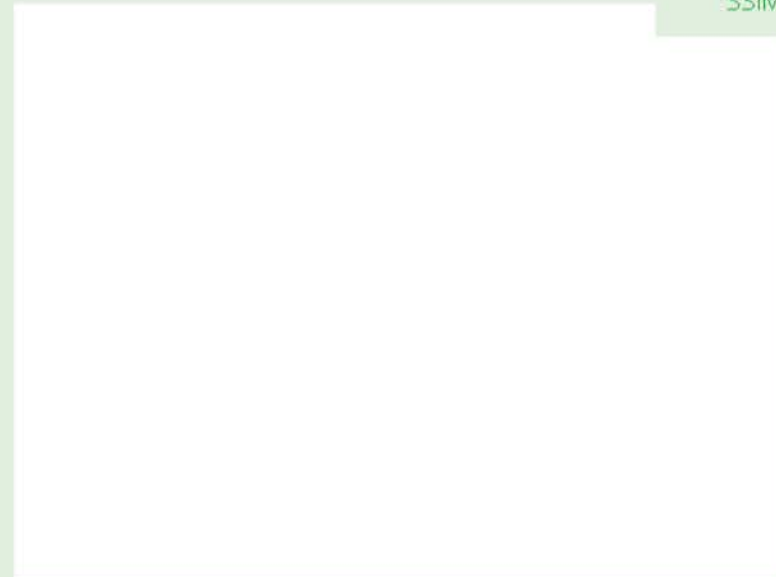
reference



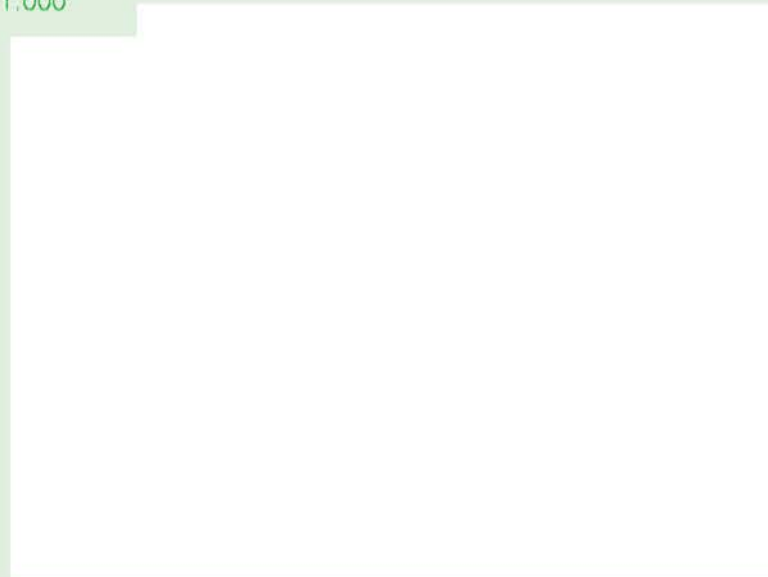
new



Looks good
SSIM = 1.000



difference

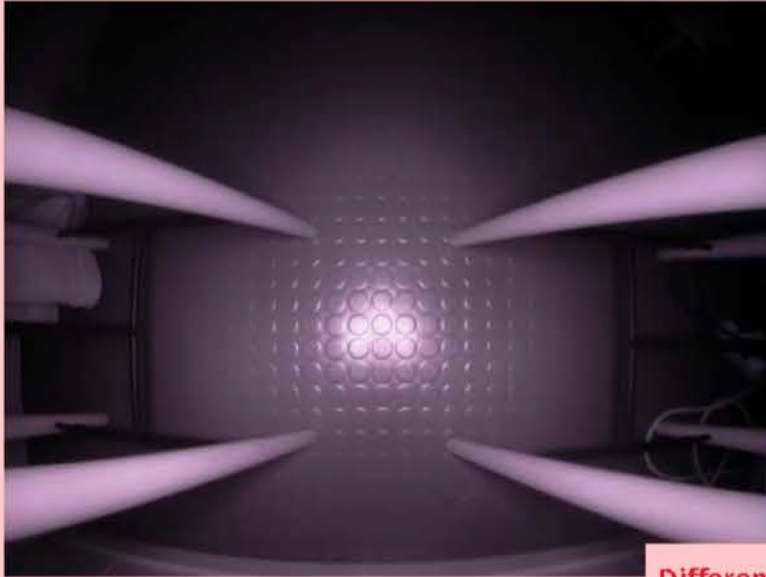


binary

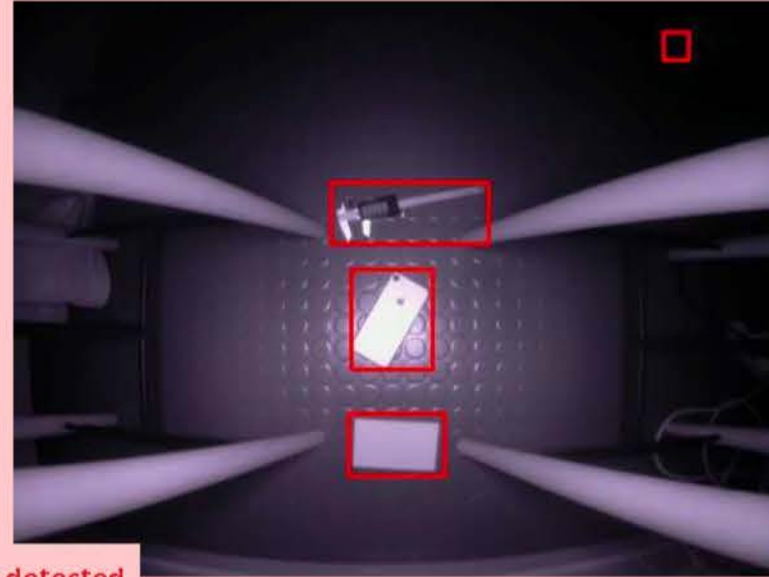
Objects

VEHICLE CLEANLINESS DETECTION SYSTEM

reference



new



Difference detected
 $SSIM = 0.947$



difference

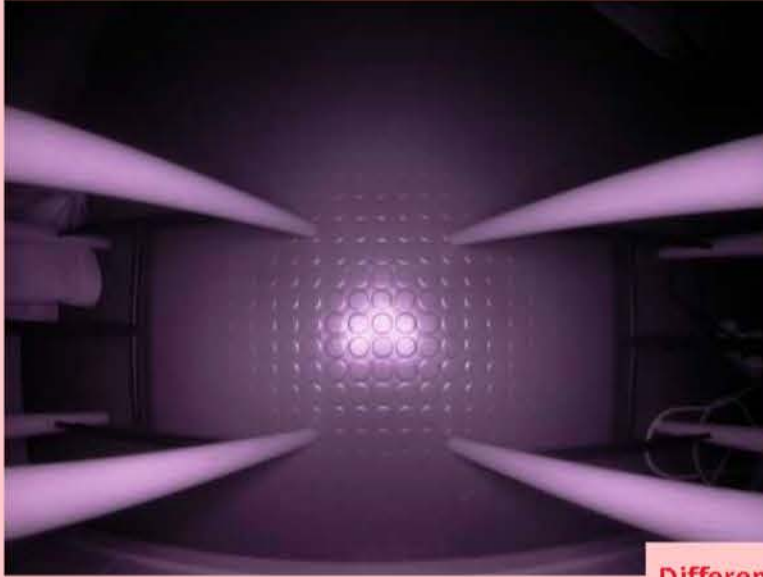


binary

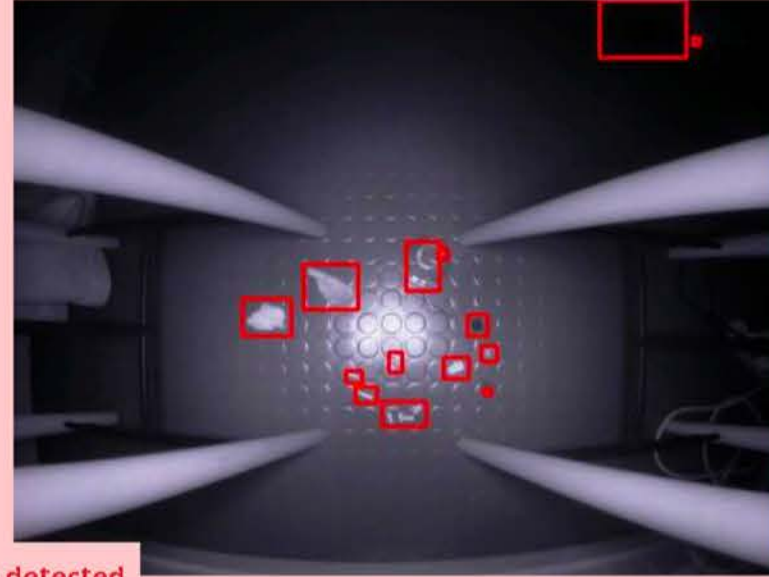
VEHICLE CLEANLINESS DETECTION SYSTEM

Trash

reference



new



Difference detected
SSIM = 0.977

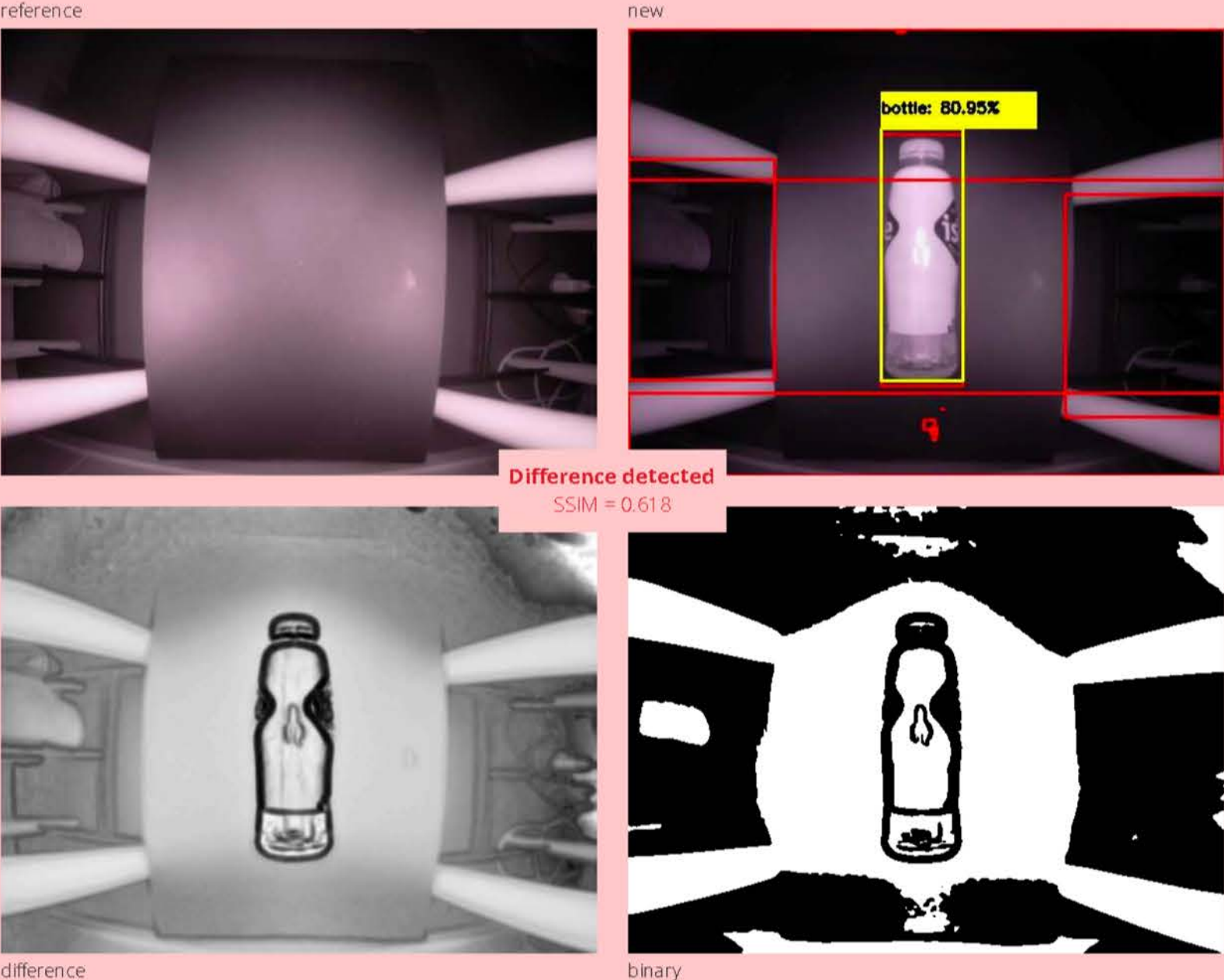


difference



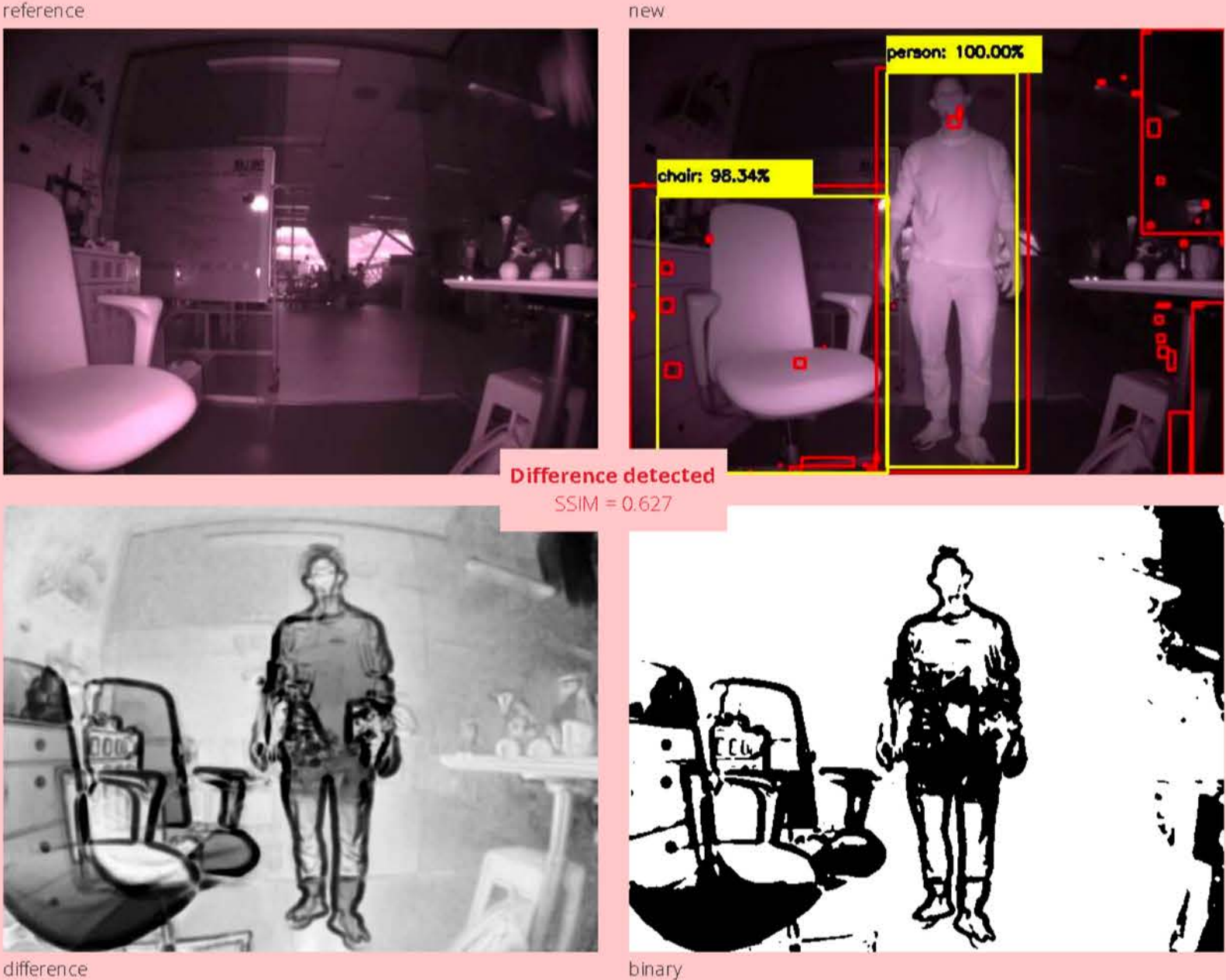
binary

VEHICLE CLEANLINESS DETECTION SYSTEM



Object recognition
with neural network

VEHICLE CLEANLINESS DETECTION SYSTEM



Why IR?

Isolating the light conditions

