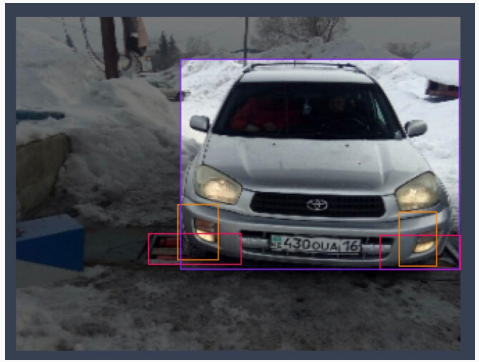
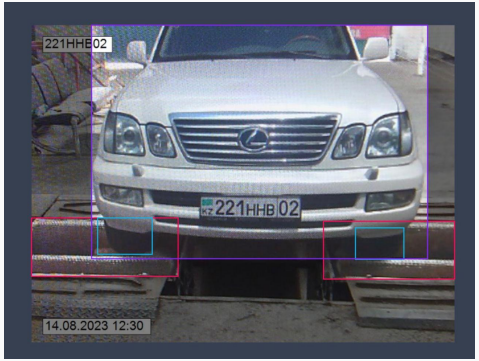
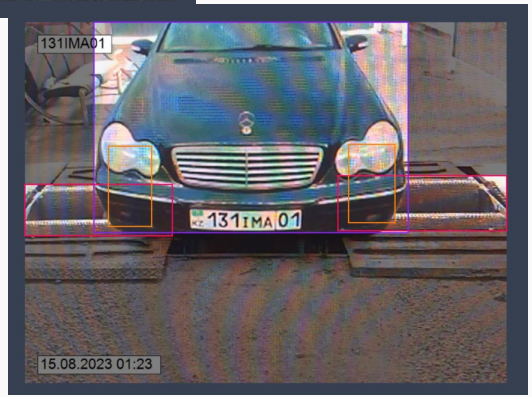
Image classification Problem

Team Vici

Annotating data manually







From the screen

Photoshopped and from the screen

Correct


301AHK16
50.640667;81.916702
ЛТК 08.09.2023 15:38


480AHK16
50.640667;81.916702
ЛТК 09.10.2023 16:08


686WVA16
50.640667;81.916702
ЛТК 12.10.2023 14:36


253AW16
ЛТК 14.08.2023 10:59

Heavy models

We tried to use:

1. YOLOv8x
2. ResNet34
3. ResNet50

Then it turned out that these models prone to **overfitting**.
This may be due to:

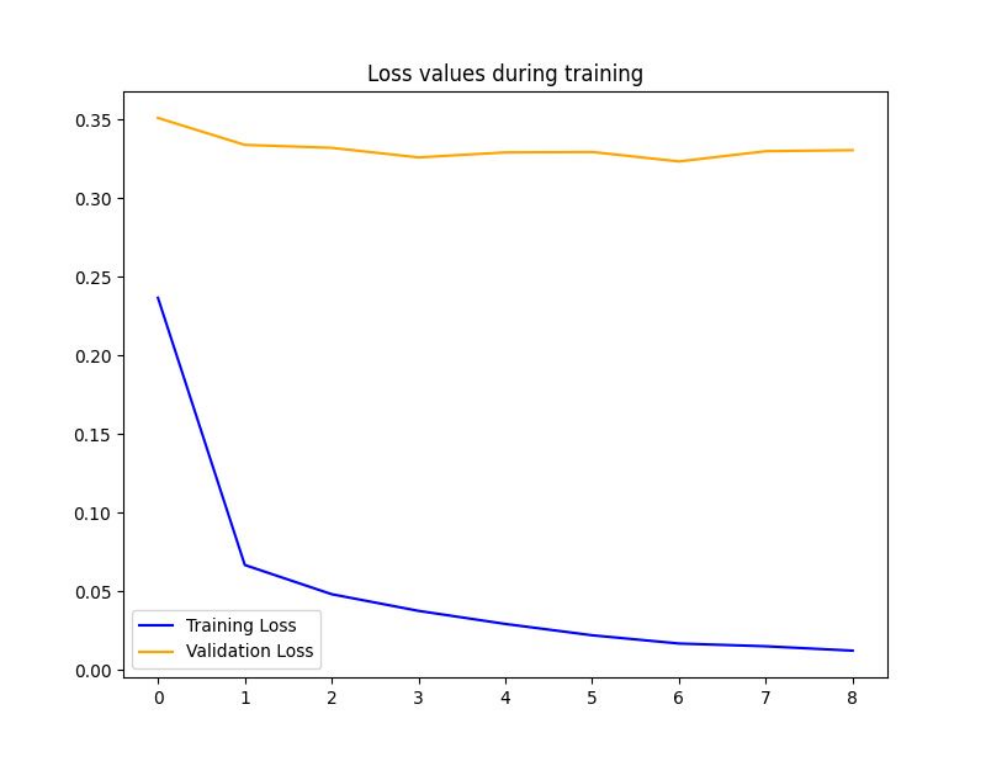
1. High complexity of a model
2. Too few training images

YOLOv8m submission

YOLO v8
Public result = 96.048%
Placed 1st after 1st submission

YOLOv8m submission

YOLOv8m
Public result = 96.012%
Private result = 96.457%



Voting Classifier (Ensemble)

1. Voting classifier based on 3 classifiers:
   a. EfficientNet_b0
   b. EfficientNet_b2
   c. ResNet18
2. Result = 98.24% (private), 96.28%(public)
3. Highest rate among all submissions
4. Average inference time = 46ms per image

Multiclass Classification

We split classes as follows:

{

0: ‘correct’,

1: ‘Not on the brake stand’,

2: ‘From the screen’,

3: ‘From the screen + photoshop’,

4: ‘Photoshop’

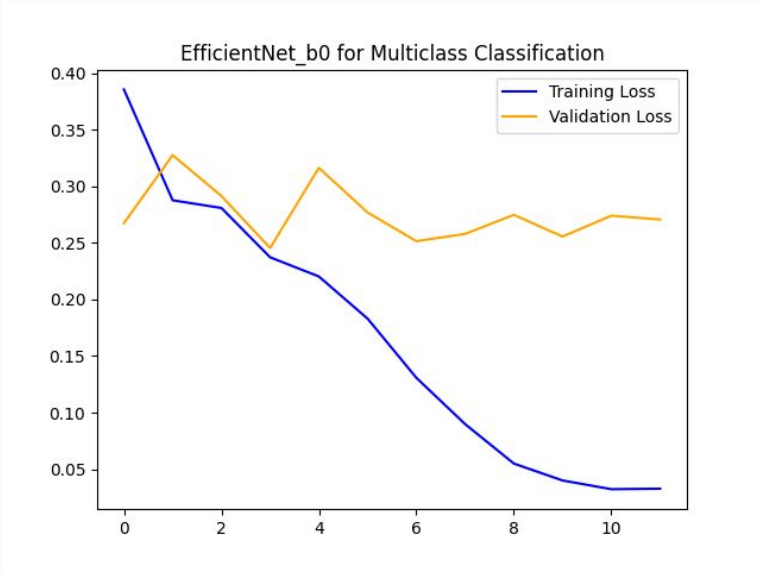
}

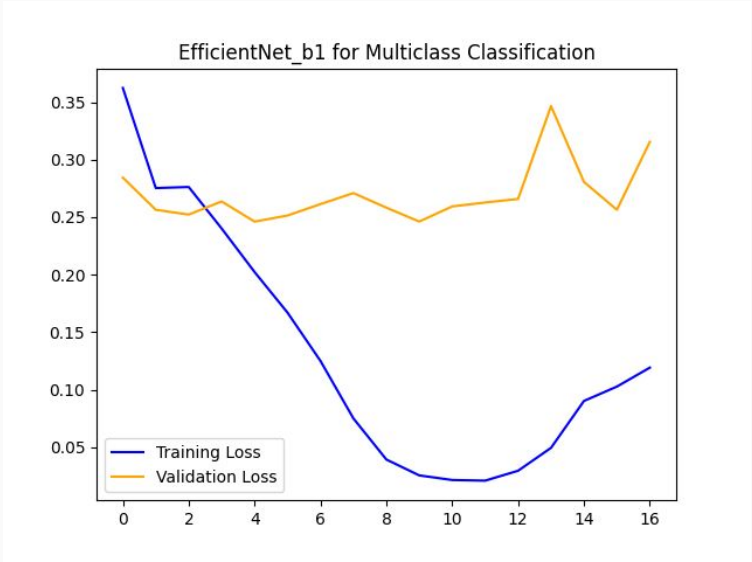
Used models:

1. YOLOv8n
2. YOLOv8m
3. EfficientNet_b0
4. EfficientNet_b1
5. EfficientNet_b2

Multiclass Classification

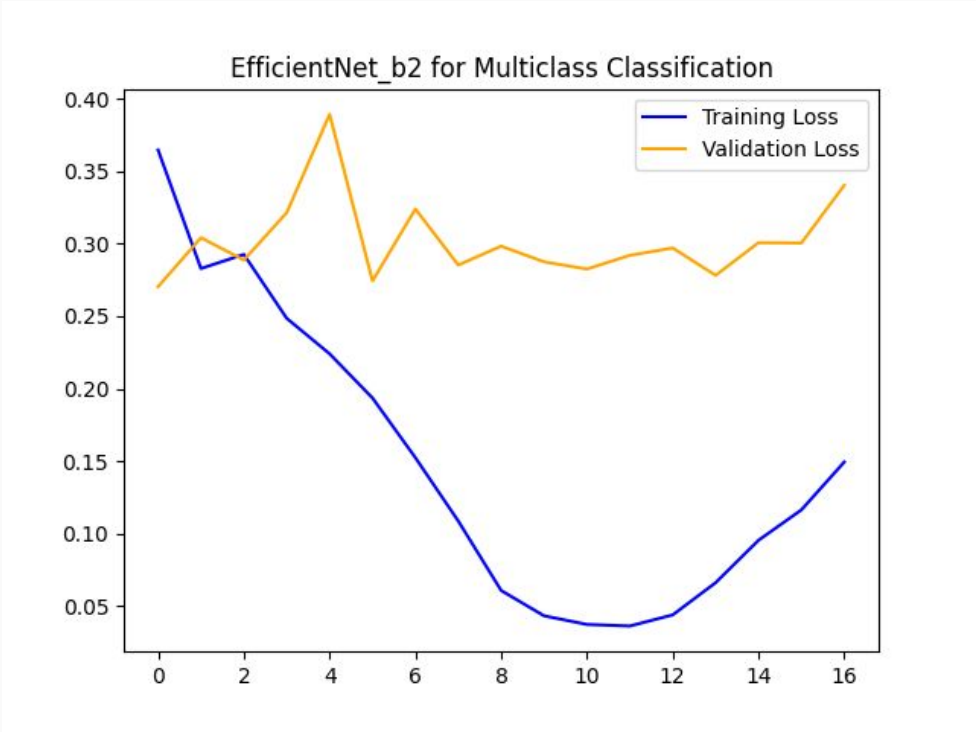
Weights are obtained after the 7th epoch
Private score = 98.23%





Weights are obtained after the 12th epoch
Private score = 98.24%

Multiclass Classification



Weights are obtained after the 12th epoch

Private score = 97.35%

Multiclass Classification

efficientnet_b2_submission_final.csv Complete · Alikhan Nurkamal · 1h ago	0.9735066707	0.958444733	☐
efficientnet_b1_submission_final.csv Complete · Alikhan Nurkamal · 1h ago	0.9823885109	0.9566904058	☐
efficientnet_b0_submission_final.csv Complete · Alikhan Nurkamal · 1h ago	0.9823377804	0.9524579418	☐