

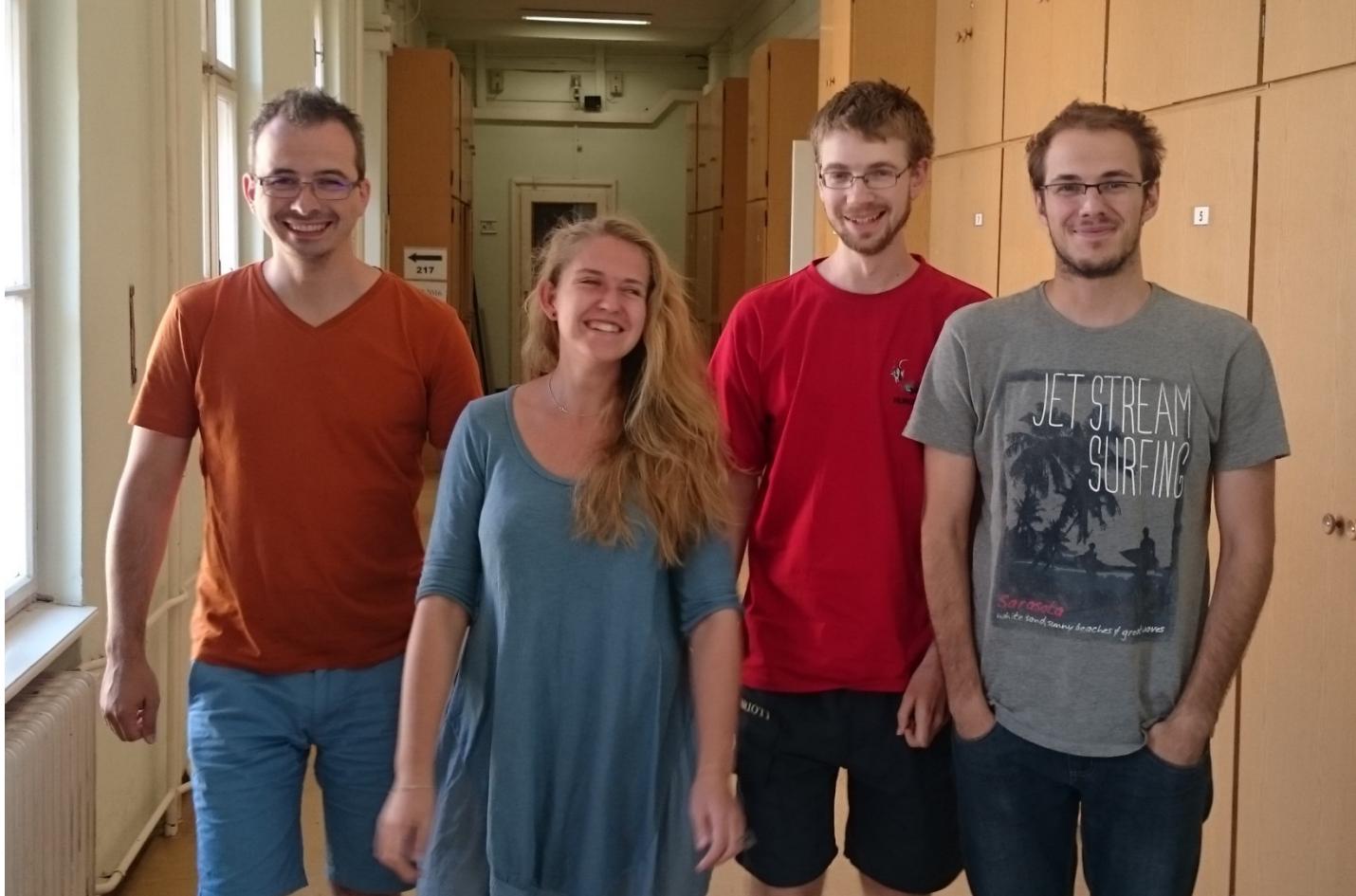
# DETECTION OF ROADSIDE VEGETATION



TEAM B

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# OUR TEAM



# PLAN OF THE PRESENTATION

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- Goals of the project
- First solution
- Later approach of the first idea
- Make it more challenging
- Summary

# GOALS OF THE PROJECT



- Detection of the vegetation from the images of roadside
- Development of several solution



# FIRST SOLUTION



- code in MatLab,
- recognition the green color from the image,
- the easiest way to distinguish the vegetation from the landscape,
- the flora is not always just green, that is why is needed to use post – processing to fill the gaps in defined area.

# FIRST SOLUTION RESULTS



# FIRST SOLUTION RESULTS



# FIRST SOLUTION RESULTS



# FIRST SOLUTION RESULTS



# LATER APPROACH OF THE FIRST IDEA

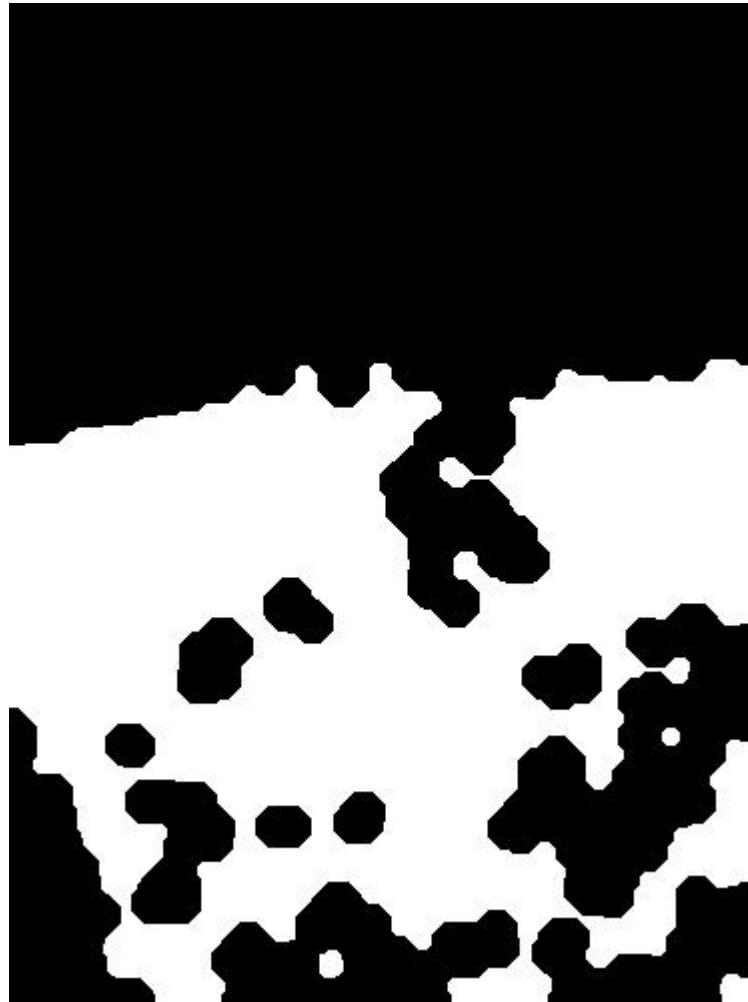


- import RGB image,
- pre – processing,
- mark all green pixels
- open then close the current output image to separate the vegetation and non-vegetation regions.

# LATER RESULTS



# LATER RESULTS



# LATER RESULTS



# MAKE IT MORE CHALLENGING



## ❑ Pre – processing:

- normalization
- denoising
- sharpening
- smoothing
- blurring



# RESULTS OF PRE – PROCESSING



# RESULTS OF PRE – PROCESSING



# RESULTS OF PRE – PROCESSING



# RESULTS OF PRE – PROCESSING



# MAKE IT MORE CHALLENGING

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## ❑ Recognizing textures:

- found the database with natural pattern of the vegetation
- add a few more for specifying the patterns of particular parts of the flora.
- create the negative and positive examples of the scenes of nature.

# TEXTURES



# MAKE IT MORE CHALLENGING

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## ❑ Machine learning:

- using different classifiers (Gaussian Naive Bayes, SVM, Decision Tree and Random Forest) to optimize model hyper parameters .
- Instead of using all features and keeping possibly irrelevant features we decided to use feature selection techniques.

# RESULTS OF MACHINE LEARNING



# RESULTS OF MACHINE LEARNING



# RESULTS OF MACHINE LEARNING



# RESULTS OF MACHINE LEARNING



# SUMMARY



- the principal idea fulfilled the task,
- created more complicated program which used pre-processing and dilated all non-gray scale pixel's green channel.
- try some more solutions,
- all the approaches has advantages and disadvantages.

# THANK YOU FOR YOUR ATTENTION!



ANY  
QUESTIONS  
?

A black rectangular background representing a chalkboard. In the center, the words "ANY QUESTIONS?" are written in white chalk in a cursive, hand-drawn style. A single question mark is positioned at the bottom right of the word "QUESTIONS".