ANDROID AUTOMATIC OBJECT DETECTION

CV Project – 2014
By Ohad Zadok.
INTRODUCTION

Motivation

Automatic Object Detection can be used to detect small objects in a photo and classify them. It can have security usages when trying to detect enemy units in a satellite images or weapons in security cameras. It can also be used to determine the context in which an image is taken by the objects in it.
INTRODUCTION

Project Goal

The project goal is to successfully identify objects from a given set after training a model.
APPROACH AND METHOD

Extracting Descriptors of an image to a vector of descriptors. Creating an SVM model from the set of images. Taking a photo of the new, unidentified object. Creating again the same vector of descriptors and run the model on the vector.

More on that at the Doc.
Algorithms

GrabCut

Algorithms

GrabCut

Before

After
Algorithms

SVM

IMPLEMENTATION

- Android System.
- Photos from device's native camera.
- A vector of descriptors was than calculated using opencv extension.
- SVM model was created using LibSVM library.
- The Entire project is run on a device with no need for external resources.
IMPLEMENTATION
IMPLEMENTATION
CONCLUSION

When applying the system to relatively small number of training sets the results are pretty accurate. When we apply it to a bigger set of objects it become unreliable, Future versions of the system can try to use different descriptors such as contours and get even more reliable results.
REFERENCES

- http://www.csie.ntu.edu.tw/~cjlin/libsvm/
- http://www.cs.ru.ac.za/research/g02m1682/