Computer Vision

EMARO- *European Master on Advanced Robotics*

Robotics Engineering *Master Degree*

Lab Session n. 4

Color-based segmentation

The following items are the steps that you have to do in this lab session:

- Display the 5 images in grayscale and split them in the three RGB channels and in the three HSV channel.
- Note the variation of the RGB components and of the Hue one in the area of the red car on the street in the 5 images.
- Select in the image "ur_c_s_03a_01_L_0376.png" the area corresponding to the red car. In this area compute the mean value (*m*) and the standard deviation (*s*) of the Hue component.
- Segment the red car in the 5 images by thresholding the Hue component (e.g. in the range between *m-3*s* and *m+3*s*).
- Display the binary images corresponding to the segmentation and the related centroid and bounding box.

Notes:

- You have to write a report that describes your work and the obtained results (please include the figures). In the report you must indicate all the surnames of the participants (not other names, e.g. the teachers).
- About the code:
  - You have to use relative paths.
  - You have to write and use functions
  - You have to provide us a script to test your code.
- The code must be uploaded as M-files. All the files (M-files, images, and report) have to be compressed in a single file named "surname_labxx.zip/tgz/rar" (all the surnames of the participants have to be indicated), and then the compressed file has to be uploaded.