- **Delivery date:** 13/5/2019
- The top three projects will be selected and each team member will get bonus (5 marks for the 1st project, 3 marks for the 2nd project, and 2 marks for the 3rd project). The selection is dependent on the demo, achieved accuracy, code design, and the quality of the report.

Report (for all the projects)

- You should deliver a report with milestone3 requirements in the practical exam. The report should contain the team number, team members, and the followings:-
    - Project problem definition
    - Methodology: Project pipeline (Main modules + algorithms used in each module), use a block diagram.
    - Accuracies for each algorithm.
    - Snapshots from the program run.
    - Conclusions.

Multi-Camera person tracking

- Track the person according to the two cameras in the following three scenarios :-
    - **Easy scenario:** there will be only one person to track in a clear illumination
    - **Medium Scenario:** Many people exist and move in the corridor, meanwhile, the person to be tracked might be partially occluded but not totally occluded.
    - **Hard Scenario:** Many people in the corridor and the person to be tracked is sometimes half occluded, some other times is fully occluded. The person Also sit-downs to adjust the shoe's tie and stand up and continue walking (different poses). The person will also move forward and backward in the same camera area before going to the other area (and not in the green area).
- Show the recorded videos with green rectangle on the tracked person in the two cameras
- **Bonus :** Make the rectangle scalable (when the person is far from the camera, the rectangle should be smaller)

Gender and Facial Expression Recognition

- **Use** the KNN in the classification stage and **understand** the algorithm. Calculate the gender and emotion accuracy using the KNN and compare the accuracy with the SVM.
- Improve the recognition accuracy of the videos in mode A.
- Implement mode B (divide the long video into n intervals, use each interval as a video and predict its label using the majority voting technique similar to milestone2). The system will be tested with the recorded videos in the two modes.
- Draw a green box around the face with the gender and the facial expression e.g) happy man, neutral woman.
- **Bonus :** recognition of 7 categories with high accuracy + Classification using CNN

Activity Recognition

- **Use** the KNN in the classification stage and **understand** the algorithm. Calculate the classification accuracy of the test set using the KNN and compare the accuracy with the SVM.
- Make the feature vector a combination of HOF and HOG features by concatenating the feature vectors. Train the model with these features and compute the classification accuracy using SVM and KNN
- **Bonus:** Use the CNN in the classification + high classification accuracy on 7 categories

Scene Parsing

- Use the validation set to evaluate your algorithms (at least two different algorithms) on the test set
- Label the segmented regions and calculate the accuracy for the labeling