Tracking objects across multiple cameras

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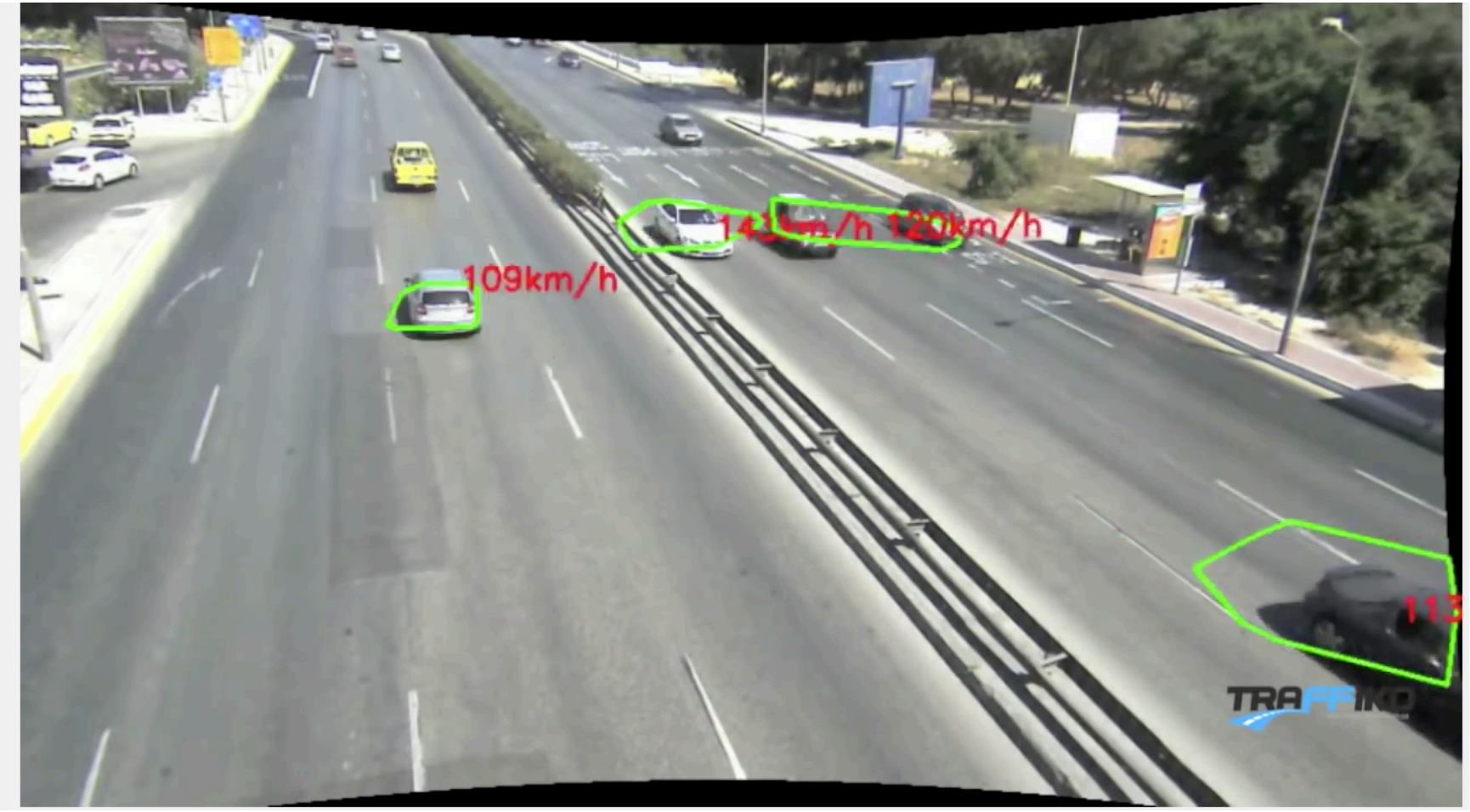
Project Status

- Started with
  - Cloud computing security
  - Biometric
- Then
  - Delay Tolerant Network
- Now
  - Object Tracking
    - As I changed my topic multiple times so the work is at an early stage

Object Tracking

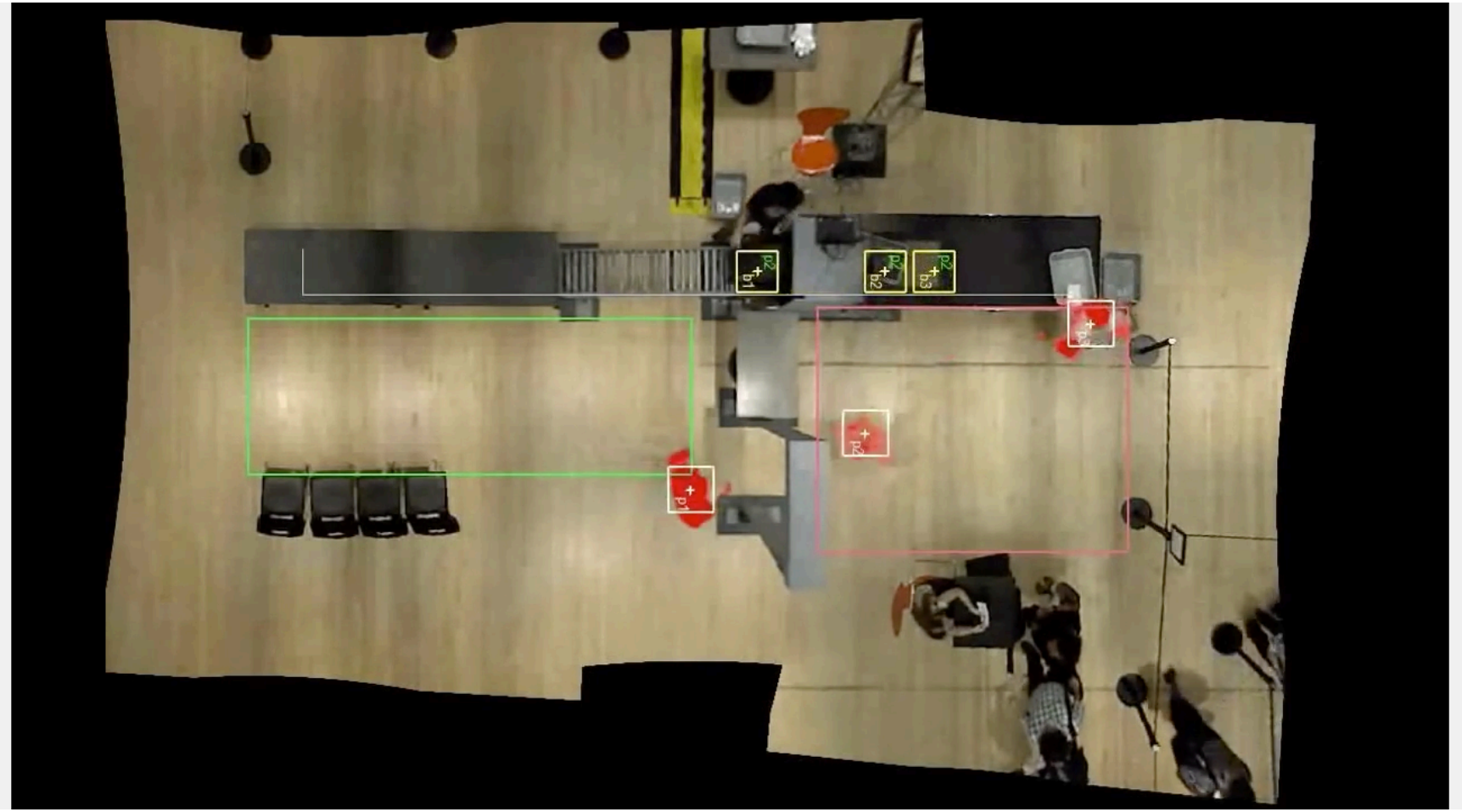
- Two main tasks:
  - Object detection:
    - Detect a particular object(s) in an image/video
  - Object tracking:
    - is the process of locating a moving object (or multiple objects) over a sequence of images

Applications: Traffic Information



https://www.youtube.com/watch?v=1Hpljc10gVM

Applications: Security and Surveillance



https://www.youtube.com/watch?v=BpxGXTcayBs

Objective

- The objective of object tracking is to associate target objects in consecutive frames

https://www.youtube.com/watch?v=6zlnJUyILxk

Challenges

- Dynamic environment
- Abrupt/non-rigid object
- Camera motion
- Multiple objects
- Computational expense and many more

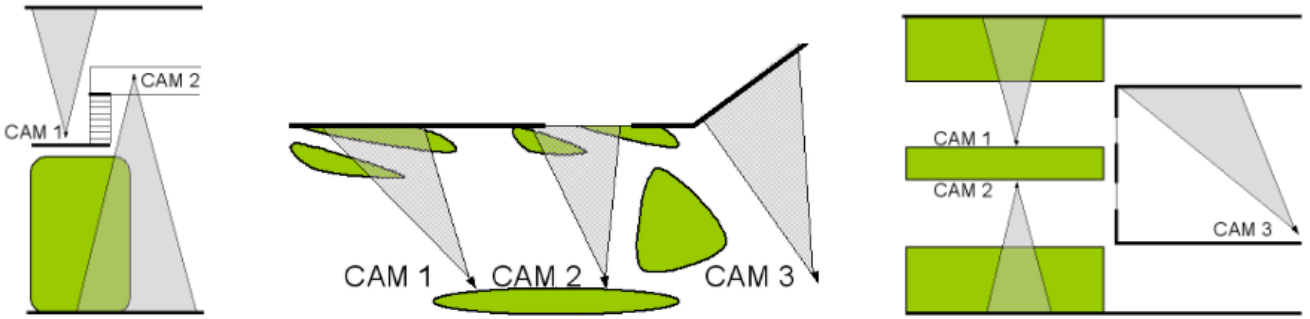
My Project

Tracking object across multiple cameras

Motivation

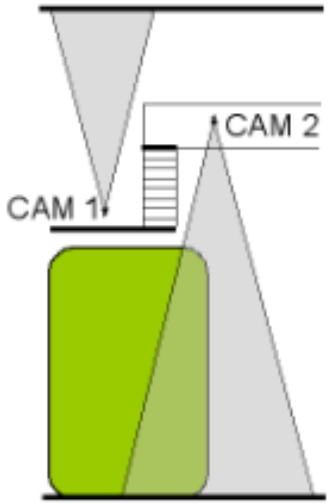
- Wide area surveillance requires network of cameras with overlapping FoVs
  - Costly
  - Need continuous maintenance
  - Computationally expensive because of huge amount of data to manage
- Thus, in realistic scenarios, the system should be able to handle multiple cameras with non-overlapping fields of view

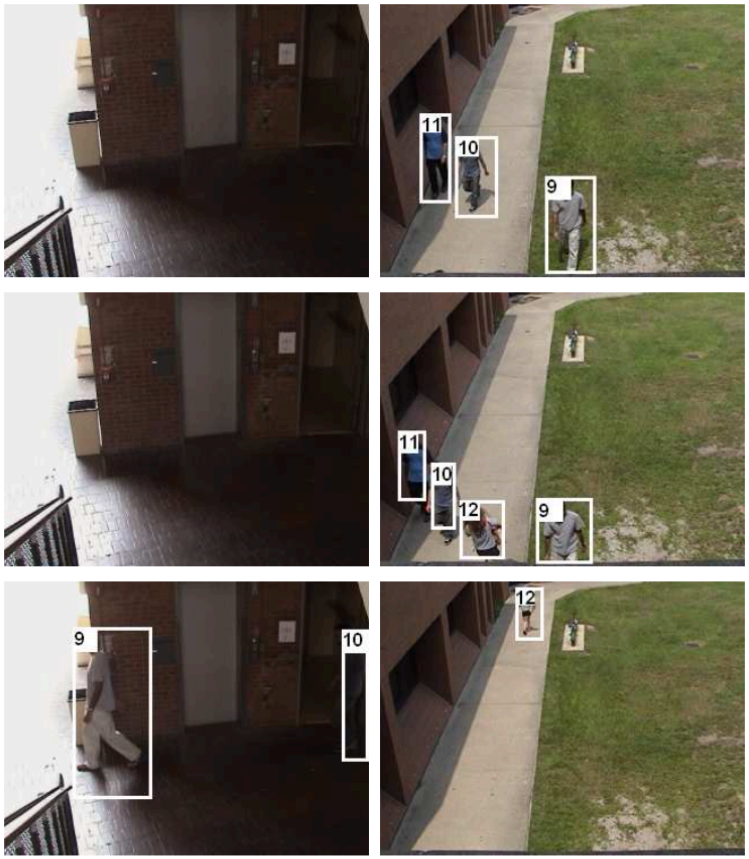
Tracking object across multiple cameras



Javed et. al "Appearance Modeling for Tracking in Multiple Non-overlapping Cameras", IEEE Computer Society Conference on Computer Vision and Pattern Recognition, pp 26 - 33 vol. 2, 2005.

Example





(a) Cam 1 (b) Cam 2

Javed et. al "Appearance Modeling for Tracking in Multiple Non-overlapping Cameras", IEEE Computer Society Conference on Computer Vision and Pattern Recognition, pp 26 - 33 vol. 2, 2005.

Thanks!