Q3

3. Once we have the predicted location of an object, we can use its predicted bounding area and mark for the change algorithm to be more sensitive in that are for changes, ergo, detect even more minute changes than the overall parameters allow. We can do this by having a second set of parameters we pass to the change detection algorithm that is more sensitive and could cause more false-positives in detection, but since it will affect only a small region in which movement is almost guaranteed by our prediction the result should be a clearer detection of the object we are tracking. This in result will give us a more accurate bounding area for the tracked object, which means in our calculations of where the bounding area should be more accurate since the error margin in detection is smaller, and thus giving us a more accurate tracking algorithm in total.  
  
Our proposed algorithm for each frame

* For each bounding area predict the bounding area in the next frame
* Calculate the change detection on the next frame using two sets of parameters:  
  The first set will be a general set aimed to reduce false positives.  
  The second set will be a set aimed to detect smaller and more sensitive changes.  
  The first will run on all the image excluding areas that are predicted to have bounding areas in them.  
  The second set will run only on the areas that the bounding areas are supposed to be.
* Find the bounding areas on the changed detection image, and associate each bounding area with an existing one (or mark it as new).
* Calculate an average between the found bounding areas and predicted bounding areas and mark it on the original video.