Q2

1. The blob size is predicted to change because most moving objects in the scene move in a fashion that projecting them from the 3D scene to the 2D image resizes them in most frames. That way, while most rigid objects do not change their size in a 3D scene in real life (like humans or cars), their distance and location in space with respects to the camera influences the way the camera captures them, ergo, the way the light reflected from them is projected to the 2D plane the camera captures.
2. We implemented the algorithm as such:

* We recognize each blob in the current frame
* For each blob recognized we check whether it overlaps an existing tracked bounding box. If it is we associate it with it, if not we treat it as new. At this point we also join overlapping found bounding boxes so to avoid separating the same object into different moving blobs.
* We predict the bounding boxes for the current frame based on the 2 frames before. If a bounding box appears only in one of the frames we assume it is stationary and we increase its “weakness” by 1. Otherwise we calculate the centroid of each bounding box and the change in size, and we assume the changes in the next frame will be linear. If the bounding box is calculated to be with negative size, we assume the object is supposed to disappear from view so we increase the bounding box’s weakness.
* We then average the found bounding boxes and the predicted bounding boxes using a simple linear interpolation. If a bounding box is present only in one of the lists we then increase its weakness again.
* We remove all the bounding boxes that their weakness level passed a certain threshold. These were objects that were tracked but not shown on the image because the integrity of the result is in question, however there is still a chance that the object will still be discovered and regain the old bounding box that tracked it.
* We add all the bounding boxes below a certain level of weakness, so that only strong prediction will appear on the image.

1. We aimed to automatically mark each new blob and check whether it is associated to an existing blob or not. While this worked fine for objects with a clear line of sight to the camera that were easily detected by the change detection, it has caused problems with adjacent moving object and objects with hardly any movement or that blend well with the background.