TASK 2:

For this project, the video capture and blob detection helps to find about its environment in the similar way as a human perceives. Once the video is captured and saved, each image is processed by detecting the blobs on the image. A blob is a group of connected pixels that share a common property. The blobs are represented using dark coloured regions. To identify the blobs, the images are converted to binary images in which all white pixels are grouped together. The centres of the blobs are measured and all the pixels closer to it are merged. The blobs are then filtered using the colour filters. Together the image capture and blob detection helps in identifying and analysing the object around the UAV and helps in the navigation.

TASK 4:

The part of the code in video\_capture is related (controls/signals) to the video capture hardware. It initiates the video capture and stores them as files in JPEG format at the given frame rate.

The part of the code in blob\_locator is used to process the images / frames stored from the video capture module. This is related to the CPU or the processing hardware which would calculate and identify the blobs in the stored images.

TASK 5:

One of the key things we learned is how frames / images from a video are stored as JPEG and processed to find blobs. A blob is a group of connected pixels that share a common property. These blobs are labelled and help in updating the way point the UAV would to take to reach it’s destination. So, a group of pixels from an image/frame, once labelled, helps us detect obstacles or find objects to avoid so that our UAV doesn’t hit / crash on an object or target the required object (like landing spot, pick up objects etc.,)