LITERATURE SURVEY

1.Object detection using different techniques

It is claimed that usage of convolutional neural network architecture in deep neural networks has added a significant shift in learning more complicated informative characteristics in images as compared to older techniques. Furthermore models such as Fast R-CNN, Faster R-CNN and YOLO have been constructed since the region based convolutional neural network architecture proposal. Fast R-CNN improves bounding box improves bounding box regression and classification. Faster R-CNN which generates area suggestions using an extra subnetwork and YOLO which detects objects using a fixed grid regression is used to recognize generic objects based on CNN architectures. Local contrast enhancement and pixel level segmentation on the other hand are used to recognize salient objects. The techniques used in detecting objects will be crucial as they establish the groundwork for the methodologies used to identify drowning and hazardous activities.

2.Drowning detection and tracking

To avoid drowning events utilizing an alert system there was a proposed system that integrated vision based monitoring system consisting of a raspberry pi, two pixy cameras and an Arduino board. They employed two cameras to detect and monitor swimmers by measuring their positions and the swimmers were obliged to wear passive yellow vests. Neptune is another technology that uses statistical image processing of video sequences to detect drowning victims are based on the variables created by statistical image processing. Another system called VIBE uses background extraction to detect and track drowning victims and updates the motion area by taking the frame difference using VIBE algorithm which primarily

evaluates the swimmers position when making judgements. There was some difficulties in spotting drowning victims in a watery environment and offer an automatic detection surveillance system. The key items are water ripples and splashes as well as background movements of reflective zones. When it comes to recognizing swimmers occulusions are also mentioned as a challenging difficulty.

3.Activity Detection using Computer Vison

Current work on human motion prediction has been focused on two independent but complementary subtasks. Short term prediction which is quantitatively evaluated by measuring the mean squared error over a short period and long term motion prediction qualitatively evaluated by visual inspections of samples over a long period .Short term models would be valuable in motion tracking applications because these jobs are applicable in several domains of work. On the other hand long term models might be valuable for creating computer graphics tools due to their broad applicability . additionally both models could be useful in human gait analysis , kinematics research and human computer interaction