ABSTRAC

In the industrial era 4.0, surveillance technology is developing more rapidly, one of which is in the object recognition system . In its application, this system still uses the conventional method of just introducing objects. However, this method is still very lacking in tracking, because we still do not know the movement of the object and we can still lose the movement of the object.

Therefore, the use of topological direction specifications can be implemented in surveillance systems, one of which we can implement into the cctv room to track the movement of the object.

This Final Project aims to create an object tracking system in the spatial plane to track the movement of objects using the YOLO algorithm. This system is a surveillance system that can be said to be fast depending on the GPU and batch value on the chosen YOLO algorithm. The results show that the accuracy of this system to detect the direction of movement in the spatial plane reaches 80%. In addition, an experiment was also carried out to see the FPS on certain video quality when using batch 16, the maximum FPS value obtained was 30 for batch 32, the maximum FPS result obtained was 28 and finally for batch 64 the maximum FPS results obtained are 15. This system can also see the coordinates and movement of objects using topological direction specifications.

Key Words: *YOLO, Object Recognition.*