FOREWORD

First and foremost, the author would love to thank God for only by His blessings and guidance the author is able to finish the thesis entitled "**COMPARING ACCURACY OF 4 COUNTING METHODS IN ROI VIA YOLO DETECTION**", properly in accordance with the planned time. This thesis would never be finished without the support and contribution from various parties involved. Therefore, the author would like to express his gratitude towards these parties, which includes:

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Finally, the author wishes that this final thesis can be beneficial to all parties who reads it, be used as other research materials, and could also be used for further development, resulting in better benefits.

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Eugene Sebastian Adiwena

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Glossary

Detection point – Points used by the Lane algorithm where the vehicle detection would take place. It is not called counting point because detected vehicles are still required to be processed through the algorithm before it can be counted.

Double counting – An issue that occurs in counting vehicles in a video. The same vehicle can be counted twice but at different frames.

Euclidean Distance algorithm – An algorithm that was created by Madeleine, a student from UPH. It uses the Euclidean Distance between vehicles of different frame to distinguish whether or not it has been counted.

Lane algorithm – An algorithm that was created by Andrew, a student from UPH. It has several points that detect vehicle that passes in each point. These points are located inside the lanes.

Manual Count – Manually counted data of the video files given by Jasa Marga. Each manually counted video was 1-3 minutes long in duration.

Middle-Frame/Mid-Frame algorithm – An algorithm that was created by Eugene, a student from UPH. It takes the middle frame of the video as the total vehicle count of that video.

Multiplier – The calibration value of one km with the real distance of the ROI.

Overlapping – An issue that occurs in counting vehicles in a video. A vehicle can be seen as "two" vehicles in one frame during detection.

(Photo View Count) PVC – The number of cars that is manually counted

(Region of interest) ROI – A place or area in the video where the vehicle counting would take place.

Manual count – The actual count of the vehicles, that was recorded and manually counted in a excel datasheet from

Simple algorithm – An algorithm that was created by Eugene, a student from UPH. It counts the average count of the total frames in the video.

Traffic Density – The number of vehicles of a given length of a highway in a traffic lane