UNIVERSITI TEKNOLOGI MARA CAWANGAN PULAU PINANG

DEVELOPMENT OF VEHICLE COUNTING SYSTEM BY USING BACKGROUND SUBTRACTION TECHNIQUE

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

In modern era, traffic congestion is a serious issue in the urban area due to increasing number of vehicles. Vehicle classification and counting has been voice require issue of intelligent traffic control system (ITS). Before this, the conventional method counting vehicles is based on manually counting using a worker. However, this method requires a lot of time and energy to human beside that they are expensive to operational costs and that system is only count. This paper proposed the video processing techniques with artificial intelligent (AI) as an alternative for identification, classification and counting the vehicles. The objective on this research is to test and analyses the best technique on vehicle detection and identify the classification technique to detect vehicle efficiency. Although the various researches have been done in this area and many methods have been implemented, still the area has room for improvement. With a view to improvement, it is proposed to develop a unique algorithm for vehicle classification and counting using Gaussian Mixture Model (GMM) and blob analysis method. Training image labeler is used to training the data images. The process is developed and implemented using MATLAB. The final counting is done by tracking the detected object. The result encouraging and the system got 82.05% and 72.81% on both of video in terms of accuracy in classification and counting using the Gaussian mixture model and blob analysis. The system can used to assisting the city management to do the statistic and prediction the rate of traffic congestion.

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