Analisis Performansi Ultrasound Vechicle Counter menggunakan Algoritma Normalized Auto-Correlation

Deta Kurnia Soundra[1], Aji Gautama Putrada[2], Maman Abdurrohman[3]

[1,2,3]Fakultas Informatika, Universitas Telkom, Bandung
[1]soundra@students.telkomuniversity.ac.id, [2]ajigps@telkomuniversity.ac.id, [3]abdurohman@telkomuniversity.ac.id

Abstract
The current traffic system has addressed the transition to the completion of technology. Supported by a complete transportation system. This two system is part of a smart city that is applied in big cities. Basically all communicate with each other to create an integrated smart city. However, this communication must be in accordance with the real time so that all smart city components are connected in real-time. In this case the researcher approves a real-time vehicle counting system that can calculate vehicles passing on a road segment. Application and development of Ultrasound sensors, microcontrollers, microprocessors and Internet Of Things that are interconnected to improve road conditions. By using the Normalized Auto-Correlation algorithm that is efficient in computing for the protection of passing vehicles. The Auto-Correlation Normalization Algorithm is usually used to compare two frequency signals to determine the similarity in the signal. In this case the Automatic Correlation-Normalization algorithm is used to determine vehicle calculations that pass the ultrasound sensor. The system will compare by comparing input data from ultrasound sensors by making sample data first then the sample data is compared with the data after the sample data. After that the correlation value will come out which has been normalized on a scale of 0-1.0. From the results of the assessment the researcher determines the threshold for the calculation of the vehicle, when the estimated value is <0.70, the system will approve and calculate the vehicle that has passed the sensor. The result from analysis of the test that percentage of error reaching 10.09% from the test.

Keywords: Real-time sensing, Smart City, Smart Transport, Smart Traffic System, Auto-Correlation, Ultrasound