VESSEL TRAFFIC SIMULATION AT CONTAINER PORT

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A project report submitted in partial fulfillment of the

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I declare that this project report entitled " *vessel traffic simulation at container port*" is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not currently submitted in candidature of any other degree.

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Date : 15th JANUARY 2015

I hereby declare that I have read this report and in my opinion this report is sufficient in terms of scope and quality for the award of the degree of Master of Engineering (Mechanical-Marine Technology)

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To my beloved mother, *Rozimah* and father, *Anah*

my sisters, *Marini, Norihan* and my brothers, *Masri,Faizal and Asyraf*

who are never fail to give me a full of supports in the journey of my study

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ABSTRAK

Peningkatan jumlah penduduk telah meningkatkan kadar aktiviti ekonomi di seluruh dunia. Apabila bilangan kapal yang tiba di pelabuhan meningkat maka ia, akan menyebabkan berlakunya kesesakan di kawasan pelabuhan. Dengan situasi demikian kemungkinan kapal untuk terlibat di dalam kemalangan seperti perlanggaran kapal, kapal karam atau kemalangan lain yang boleh menyebabkan berlaku kehilangan nyawa yang besar. Oleh kerana jumlah pelaburan dalam industri perkapalan adalah sangat besar, maka berlakunya kemalangan ia akan memberi kesan yang besar bukan sahaja kepada perniagaan, tetapi ia juga akan menyumbang kepada pencemaran alam sekitar. Pengetahuan mengenai pergerakan trafik kapal di kawasan pelabuhan melalui simulasi trafik kapal akan membantu untuk mengelakkan kemalangan dari berlaku dan data dari simulasi trafik kapal juga boleh digunakan untuk aktiviti merancang pembangunan kawasan pelabuhan di masa hadapan. Simulasi trafik kapal telah dibangunkan menggunakan perisian MATLAB di mana keputusan simulasi ini adalah untuk menentukan trafik kapal, kadar penggunaan pelabuhan dan juga keupayaan kemudahan pelabuhan untuk memberikan perkhidmatan.

ABSTRACT

Increase in the number of the population will increase the number of the trading for the goods throughout the world. As the number of ships arrived at the port was increased, there will be the problem that leads to the port congestion. It will increase the possibilities of the ship to get involved in the accident, such as collision, grounding or other possible accident that will cause the huge fatallity. The investment in the shipping industry is very huge and it will affect not only the business, but it also will contribute to the environmental pollution. The understanding of the ship traffic movement at the port area using vessel traffic simulation will help in avoiding the accident occur and the data from the vessel traffic simulation also can be applied for the future port development. Vessel traffic simulation was developed using the MATLAB software where the outcome of this simulation is to determine the ship traffic, and the port utilization as well as the capacity of the port facilities.